EXHIBIT C

Expert Report of Dr. Loren Collingwood

Loren Collingwood

2024-05-31

Executive Summary

I have been retained by plaintiffs as an expert, and have been asked to examine racially polarized voting between white and Black voters in North Carolina. RPV occurs when a majority (e.g., 50% + 1 in a two candidate scenario) of white voters cast ballots for the same set of candidates, and the majority (50% +1) of minority voters cast ballots for a different set of candidates. To more fully establish RPV, experts assess multiple election contests to determine if a pattern of RPV is present across contests. I also examine how cohesive Black and white voters, respectively, are in supporting candidates of choice. I conduct this analysis in a variety of geographic and electoral jurisdictions, including statewide, the 2023-enacted State Senate Districts 1 and 2, and a 12-county demonstration area.

In addition, I examine whether the 2023-enacted State Senate Districts 1 and 2 perform for Black voters, and compare these results against four demonstration plans provided to me by plaintiffs' counsel. Finally, I analyze the average Black Voting Age Population (BVAP) that would result in a victory for Black-preferred candidates in presidential and midterm years.

In conducting this analysis, I rely on the framework set forth in *Gingles v. Thornburg*. Here, I focus specifically on prongs 2 and 3 of the Gingles framework. The second and third prongs of the Gingles framework respectively examine whether voting within the minority population is cohesive and whether voting between minority and white majority voters is sufficiently racially polarized such that members of the majority vote sufficiently as a bloc to usually defeat the minority's preferred candidate. Accordingly, I further examine whether majority white voters tend to block minority voters from electing their candidates of choice.

Based on my analysis, I conclude the following:

- Across 49 election contests and four election cycles, voting in North Carolina as a whole is racially polarized between whites and Blacks.
- Across North Carolina as a whole, Black voters consistently back candidates by greater than 95%.
- Across North Carolina as a whole, white voters consistently oppose the Black-preferred candidate by about 70-75%.
- Voting is also racially polarized in the 2023-enacted State Senate Districts 1 and 2, and those districts show more white bloc voting than in North Carolina as a whole.

1

- In both enacted State Senate Districts 1 and 2, more than 97% of Black voters typically back the same candidate (and in District 2, more than 98%).
- In both enacted State Senate Districts 1 and 2, around 80% of white voters typically oppose the Black-preferred candidate. In the most recent elections (2020 and 2022) white bloc voting is more extreme in these districts than in older elections I considered (2018 and 2016).
- Voting is even more polarized in the 12-county area where a Black-majority district is possible (Demonstration area). There, Black voters back the same candidate between 98-99% of the time regardless of election year. White voters, however, become less likely to cross over to support the Black-preferred candidate, shifting from 21% mean support in 2016 to between 11-12% support in 2022, with an average across all four years of 15.7%.
- Enacted State Senate Districts 1 and 2 in the 2023-enacted State Senate plan will not perform for Black voters. In the three most recent election cycles (2022, 2020, and 2018) across 31 analyzed statewide elections, the Black-preferred candidate wins a majority of the vote 0 out of 31 times in State Senate Districts 1 and 2. If 2016 elections are considered as well, the Black-preferred candidate wins a majority of the vote only 6 times out of 49 in State Senate District 1 and 5 times out of 49 in State Senate District 2.[1]
- Thus, in enacted State Senate Districts 1 and 2, white bloc voting will usually (indeed, almost always) prevent Black voters from electing their candidates of choice.
- An analysis using the most recent 2022 and 2020 election data estimates that the counties comprising a plausible demonstration district on average elect a Black-preferred candidate at a BVAP of 47%.

My opinions are based on the following data sources: 2022, 2020, 2018, and 2016 precinct election[2] and vote history[3] returns available at the North Carolina State Board of Elections (NCSBE) website, precinct shape files also from NCSBE,[4], 2020 Census Block-level and County-level PL94-171 data, redistricting legislative map shapefile plans from the state legislature's website,[5] and demonstration map shapefile plans from plaintiffs' counsel.

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[1] The 2018 contests provide some added texture to this analysis, which I discuss later in the report.

[2] https://www.ncsbe.gov/results-data/election-results/historical-election-results-data

[3] https://www.ncsbe.gov/results-data/voter-history-data

[4] https://dl.ncsbe.gov/?prefix=PrecinctMaps/

[5] https://www.ncleg.gov/Redistricting, VEST vtd data from the Redistricting data hub, Senate Bill 758 2 Ed

I am being compensated at a rate of $450/hour. My compensation is not contingent on the opinions expressed in this report, on my testimony, or on the outcome of this case.

Background and Qualifications

I am an associate professor of political science at the University of New Mexico. Previously, I was an associate professor of political science at the University of California, Riverside. I have published two books with *Oxford University Press*, 42 peer-reviewed journal articles, and nearly a dozen book chapters focusing on sanctuary cities, race/ethnic politics, election administration, and RPV. I received a Ph.D. in political science with a concentration in political methodology and applied statistics from the University of Washington in 2012 and a B.A. in psychology from the California State University, Chico, in 2002. I have attached my curriculum vitae, which includes an up-to-date list of publications, as Exhibit 1 to this report.

In 2021 I led redistricting and map-drawing and demographic analysis for the Inland Empire Funding Alliance in Southern California. I was the redistricting consultant for the West Contra Costa Unified School District, CA, independent redistricting commission in which I was charged with drawing court-ordered single member districts. I was the redistricting consulting with Roswell, NM, Independent School District to draw single member districts.

I served as a testifying expert for the plaintiff in the Voting Rights Act Section 2 case *NAACP v. East Ramapo Central School District*, No. 17 Civ. 8943 (S.D.N.Y.). I am the quantitative expert in *LULAC vs. Pate (Iowa)*, 2021, and have filed an expert report in that case. I was the BISG expert in *LULAC Texas et al. v. John Scott et al. (1:21-cv-0786-XR)*, 2022. I filed two reports and was twice deposed in that case. I was the RPV expert for the plaintiff in *East St. Louis Branch NAACP, et al. vs. Illinois State Board of Elections, et al.*, having filed two reports in that case. I was the Senate Factors expert for plaintiff in *Pendergrass v. Raffensperger (N.D. Ga. 2021)*, where I filed two reports, was deposed, and testified at trial. I was the RPV expert for plaintiff in *Johnson, et al., v. WEC, et al., No. 2021AP1450-OA*, having filed three reports in that case. I was the RPV expert for plaintiff in *Faith Rivera, et al. v. Scott Schwab and Michael Abbott*. I filed a report, was deposed, and testified at trial. I served as the RPV expert for the intervenor in *Walen and Henderson v. Burgum and Jaeger No 1:22-cv-00031-PDW-CRH*, where I filed a report and testified at trial. I was the RPV expert in *Lower Brule Sioux Tribe v. Lyman County* where I filed a report. I was the RPV expert for plaintiff in *Soto Palmer et al. vs. Hobbs et al.*, where I filed two reports, was deposed, and testified at trial. I was the RPV expert for plaintiff in *IE United et al. v. Riverside County, CVRI2202423*, where I filed a report and was deposed. I was the RPV expert for plaintiff in *Paige Dixon v. Lewisville Independent School District, et al., Civil Action No. 4:22-cv-00304*, where I filed two expert reports. I was the RPV expert for plaintiff in *Turtle Mountain Band of Chippewa Indians v. Jaeger No. 3:22-cv-00022-PDW-ARS*, where I filed two reports, was deposed, and testified at trial.

3

Ecological Inference

To determine if RPV exists, experts must generally infer individual level voting behavior from aggregate data – a problem called ecological inference. We turn to aggregate (i.e., precinct) data because most of the time we do not have publicly available survey data on all election contests and in particular geographic areas where we want to see if RPV is present. In general, we want to know how groups of voters (e.g., non-Hispanic white voters) voted in a particular election when all we have to analyze are precinct vote returns and the demographic composition of the people who live in those precincts and/or who voted in those precincts. In the case of North Carolina, for each precinct we know how many votes each candidate received, and we know how many Black and white voters cast ballots in that same precinct.

In this report I rely on King's Ecological Inference (EI) method to assess whether voting is racially polarized. This method is designed to estimate vote choice by race when the analyst is concerned with the voting behavior of two groups (e.g., Blacks vs. non-Hispanic whites), and two candidates (e.g., Democrat vs. Republican), but can also be employed to analyzed multiple candidates and multiple groups.

The R software package, eiCompare (Collingwood et al. 2020), builds upon packages eiPack (Lau, Moore, and Kellermann 2020) and ei (King and Roberts 2016) to streamline RPV analysis, and includes the statistical routines necessary to conduct ecological inference.The rest of the report presents my results: 1) A list of the elections analyzed and summary findings; 2) *Gingles II* RPV Results and analysis; 3) *Gingles III* blocking analysis including electoral performance analysis of the demonstration districts; 4) District effectiveness analysis.

List of Elections Analyzed

I selected all statewide elections from 2016 - 2022, although I note that top of the ticket races are most relevant and informative, especially when looking to more dated election results, because voters are paying the most attention to these contests. This is in line with the General Assembly's online statpack analyzing district performance for the 2023 enacted state Senate map. The statpack did not incorporate any races from 2018 (a year when the only statewide races were judicial races) and only incorporated races for President, U.S. Senate, Governor, Lieutenant Governor, and Attorney General in 2016.[6] However, I include all statewide races for completeness.

Tables 1 and 2 break down the contests analyzed between 2016-2022, beginning with contests in 2022 and 2020, respectively. In 2022, I analyzed seven statewide contests: U.S. Senate, NC Court of Appeals 8, NC Court of Appeals 9, NC Court of Appeals 10, NC Court of Appeals 11, NC State Supreme Court Seat 3, and NC State Supreme Court Seat 5. RPV is

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[6] https://www.ncleg.gov/Files/GIS/Plans_Main/Senate_2023/SL%202023-146%20Senate%20-%20StatPack2023_S.pdf

evident in each of these contests statewide, and also within the 2023-enacted State Senate Districts 1 and 2 and the Demonstration area. The 2020 general election includes 20 statewide contests, ranging from U.S. president to governor, Superintendent of Public Instruction, and four seats on the Court of Appeals. As with the 2022 analysis, RPV is present across the board, both statewide, within the 2023-enacted State Senate Districts 1 and 2, and within the Demonstration area.

Finally, I include two columns labeled SS1-Blocked and SS2-Blocked. A value of yes indicates that white voters vote sufficiently as a bloc in each respective enacted district to block Black voters from electing their candidate of choice.

Table 1. List of contests analyzed, between 2020-2022.

Year	Contest	Dem	Rep	StatewideRPV	SS1-RPV	SS2-RPV	SS1-Blocked	SS2-Blocked
2022	U.S. Senate	Beasley	Budd	Yes	Yes	Yes	Yes	Yes
2022	NC Supreme Ct. 3	Inman	Dietz	Yes	Yes	Yes	Yes	Yes
2022	NC Supreme Ct. 5	Ervin	Allen	Yes	Yes	Yes	Yes	Yes
2022	NC Court of Appeals 8	Thompson	Flood	Yes	Yes	Yes	Yes	Yes
2022	NC Court of Appeals 9	Salmon	Stroud	Yes	Yes	Yes	Yes	Yes
2022	NC Court of Appeals 10	Adams	Tyson	Yes	Yes	Yes	Yes	Yes
2022	NC Court of Appeals 11	Jackson	Stading	Yes	Yes	Yes	Yes	Yes
2020	President	Biden	Trump	Yes	Yes	Yes	Yes	Yes
2020	US Senate	Cunningham	Tillis	Yes	Yes	Yes	Yes	Yes
2020	Governor	Cooper	Forest	Yes	Yes	Yes	Yes	Yes
2020	Lieutenant Gov	Holley	Robinson	Yes	Yes	Yes	Yes	Yes
2020	Atty General	Stein	O'Neill	Yes	Yes	Yes	Yes	Yes
2020	Treasurer	Chatterji	Folwell	Yes	Yes	Yes	Yes	Yes
2020	Sec of State	Marshall	Sykes	Yes	Yes	Yes	Yes	Yes
2020	Auditor	Wood	Street	Yes	Yes	Yes	Yes	Yes
2020	Ag Commish	Wadsworth	Troxler	Yes	Yes	Yes	Yes	Yes
2020	Insurance	Goodwin	Causey	Yes	Yes	Yes	Yes	Yes
2020	Labor	Holmes	Dobson	Yes	Yes	Yes	Yes	Yes
2020	Sup Instruct	Mangrum	Truitt	Yes	Yes	Yes	Yes	Yes
2020	Chief Justice 01	Beasley	Newby	Yes	Yes	Yes	Yes	Yes
2020	Court Seat 02	Inman	Berger, Jr.	Yes	Yes	Yes	Yes	Yes
2020	Court Seat 04	Davis	Barringer	Yes	Yes	Yes	Yes	Yes
2020	Appeals 04	Shields	Wood	Yes	Yes	Yes	Yes	Yes
2020	Appeals 05	Cubbage	Gore	Yes	Yes	Yes	Yes	Yes
2020	Appeals 06	Styers	Dillon	Yes	Yes	Yes	Yes	Yes
2020	Appeals 07	Young	Carpenter	Yes	Yes	Yes	Yes	Yes
2020	Appeals 13	Brook	Griffin	Yes	Yes	Yes	Yes	Yes

Table 2 presents the same table as above for the 2018 and 2016 general election contests. Again, the analysis includes all statewide elections for both years. I conducted the analysis statewide, then also subset to the precincts comprising enacted State Senate Districts 1 and 2. The results show consistent RPV across contests and jurisdictions, both statewide and within the 2023-enacted State Senate Districts 1 and 2, and with the Demonstration area.

5

Contests with an asterisk in the SS-1 Blocked and SS-2 Blocked columns indicate that the Black-preferred candidate received a minority of the vote and a lower vote total than the two top white-preferred candidates, but received a higher vote total than the top white-preferred candidate. In the contest with the double asterisk, the candidates did not declare a party affiliation. For 2018, I have collapsed two white-preferred candidates into a combined category in both the State Supreme Court contest and the Court of Appeals Seat 2 for reasons I discuss in the performance analysis section. These candidates draw on the same voters as their votes correlate around 0.75. I present both the collapsed and un-collapsed RPV results in the appendix.

Table 2. List of contests analyzed, between 2016-2018.

Year	Contest	Dem	Rep	StatewideRPV	SS1-RPV	SS2-RPV	SS1-Blocked	SS2-Blocked
2018	State Sup. Court	Earls	Jackson/Anglin	Yes	Yes	Yes	Yes*	Yes*
2018	Court of Appeals 1	Arrowood	Heath	Yes	Yes	Yes	Yes	Yes
2018	Court of Appeals 2	Hampson	Griffin/Ray	Yes	Yes	Yes	Yes*	Yes*
2018	Court of Appeals 3	Collins	Kitchen	Yes	Yes	Yes	Yes	Yes
2016	President	Clinton	Trump	Yes	Yes	Yes	Yes	Yes
2016	USS	Ross	Burr	Yes	Yes	Yes	Yes	Yes
2016	Governor	Cooper	McCrory	Yes	Yes	Yes	Yes	Yes
2016	LG	Coleman	Forest	Yes	Yes	Yes	Yes	Yes
2016	Atty. Gen	Stein	Newton	Yes	Yes	Yes	Yes	Yes
2016	Treasurer	Blue	Folwell	Yes	Yes	Yes	Yes	Yes
2016	SoS	Marshall	LaPaglia	Yes	Yes	Yes	No	No
2016	Auditor	Wood	Stuber	Yes	Yes	Yes	No	No
2016	Agriculture	Smith	Troxler	Yes	Yes	Yes	Yes	Yes
2016	Insurance	Goodwin	Causey	Yes	Yes	Yes	No	No
2016	Labor	Meeker	Berry	Yes	Yes	Yes	Yes	Yes
2016	Public Instruct	Atkinson	Johnson	Yes	Yes	Yes	No	No
2016	State Supreme Ct.	Morgan**	Edmunds**	Yes	No	Yes	No	No
2016	NC Court Appeals 1	Rozier	Dietz	Yes	Yes	Yes	Yes	Yes
2016	NC Court Appeals 2	Eagles	Murphy	Yes	Yes	Yes	Yes	Yes
2016	NC Court Appeals 3	Jones	Hunter	Yes	Yes	Yes	Yes	Yes
2016	NC Court Appeals 4	Stephens	Berger	Yes	Yes	Yes	No	Yes
2016	NC Court Appeals 5	Mckoy-Mitchell	Zachary	Yes	Yes	Yes	Yes	Yes

Racially Polarized Voting – Statewide

Tables 1 and 2 summarized the overall RPV findings; this section presents the results. I present the results in the form of a coefficient plot as displayed in Figure 1. Each point on the plot represents the EI estimate for a particular contest. The small bands around the point represent the 95% confidence interval around the estimate. Figure 1 presents all results in one plot across the four election cycles. The results are binned by year, with

6

support for the Black-preferred candidate on the y-axis. I present contest-by-contest results – which form the basis of this plot – in the Appendix.

Beginning with the 2016 elections (first (Black) column and fifth (white) column), the results show that Black voters back their preferred candidate by an average of 97%. Meanwhile white voters Statewide give the same set of candidates on average 29% of their vote. This pattern is consistent across each election year. Overall, the pattern reveals stark racially polarized voting; Blacks support their candidates with (average): 97% (2016), 98% (2018), 98% (2020), and 95.5% (2022).[7] Whites support that same set of candidates with: 29% (2016), 31% (2018), 25% (2020), and 29% (2022).

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[7] The slight drop in support in 2022 is partly attributable to minor party candidates/write-ins who garner 2-3% of the vote. If those candidates are taken out of denominator, Black support for their preferred candidate likewise rises a few percentage points closer to the time series average.

Figure 1. Racially Polarized Voting coefficient plot. Ecological Inference (EI) results.
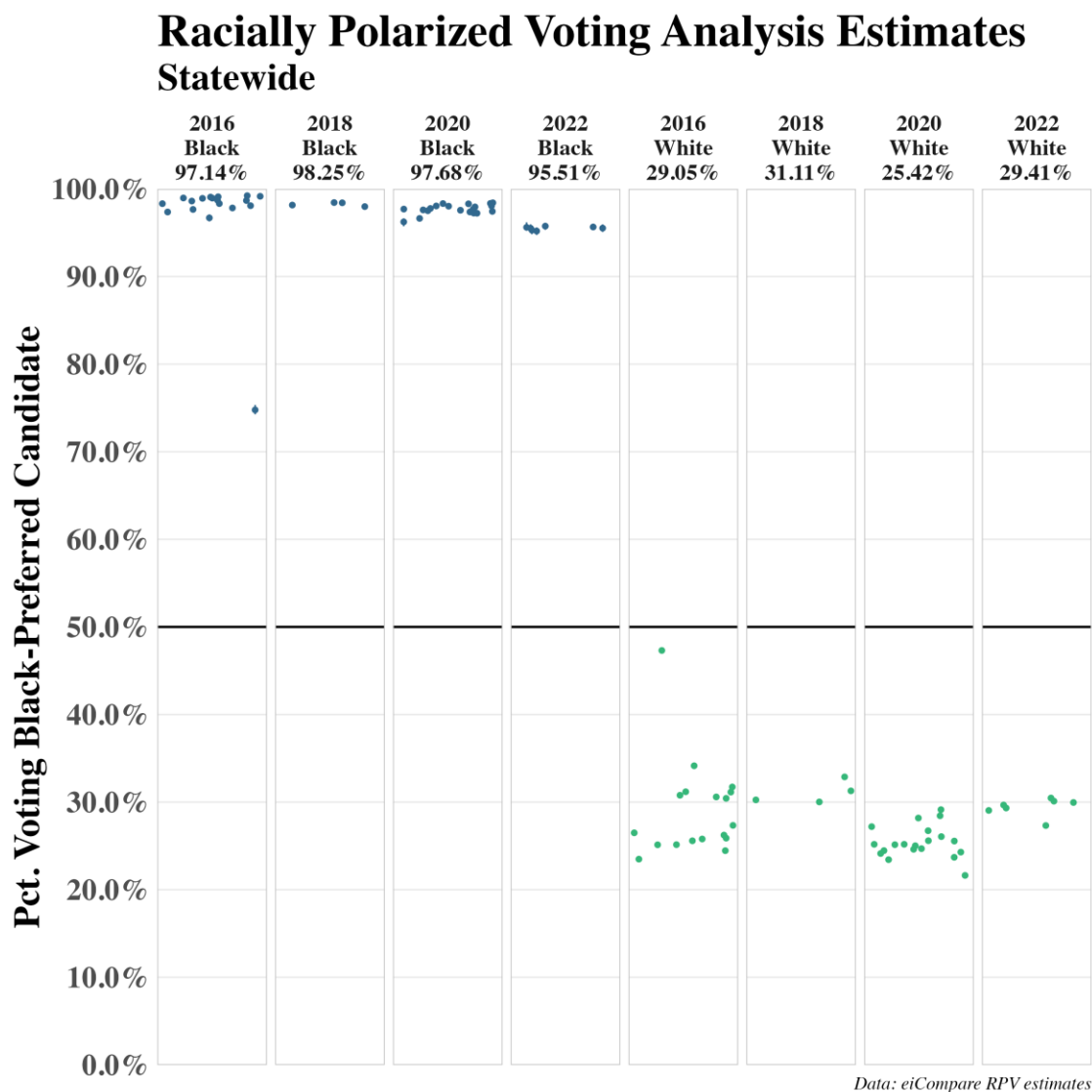
Racially Polarized Voting – 2023 Enacted State Senate Districts

Figures 2 and 3 present the estimates in the exact same format as presented in Figure 1; however, the results are subset to only enacted State Senate Districts 1 and 2, respectively.
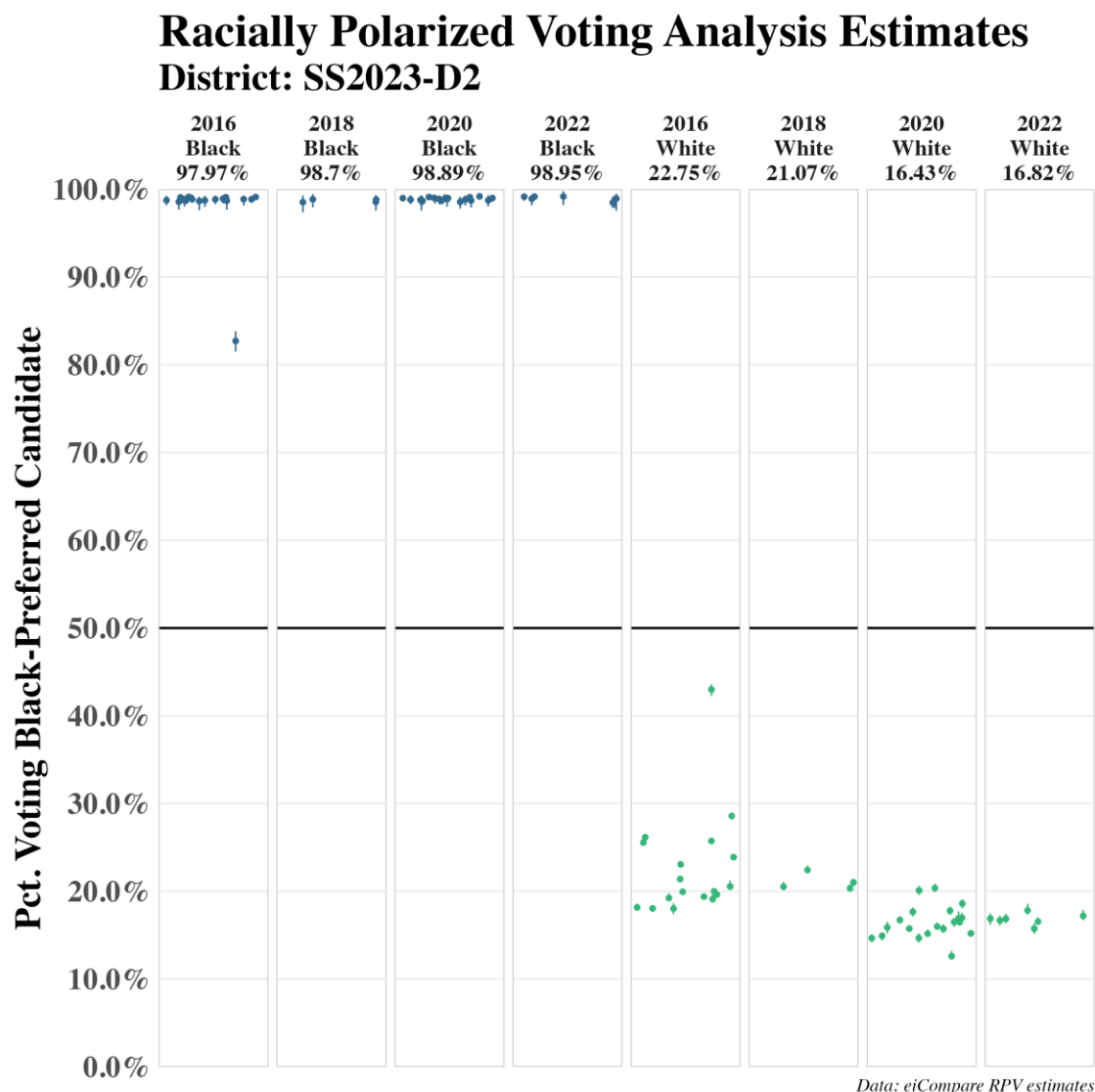
District 1

Figure 2. Racially Polarized Voting coefficient plot. Ecological Inference (EI) results.
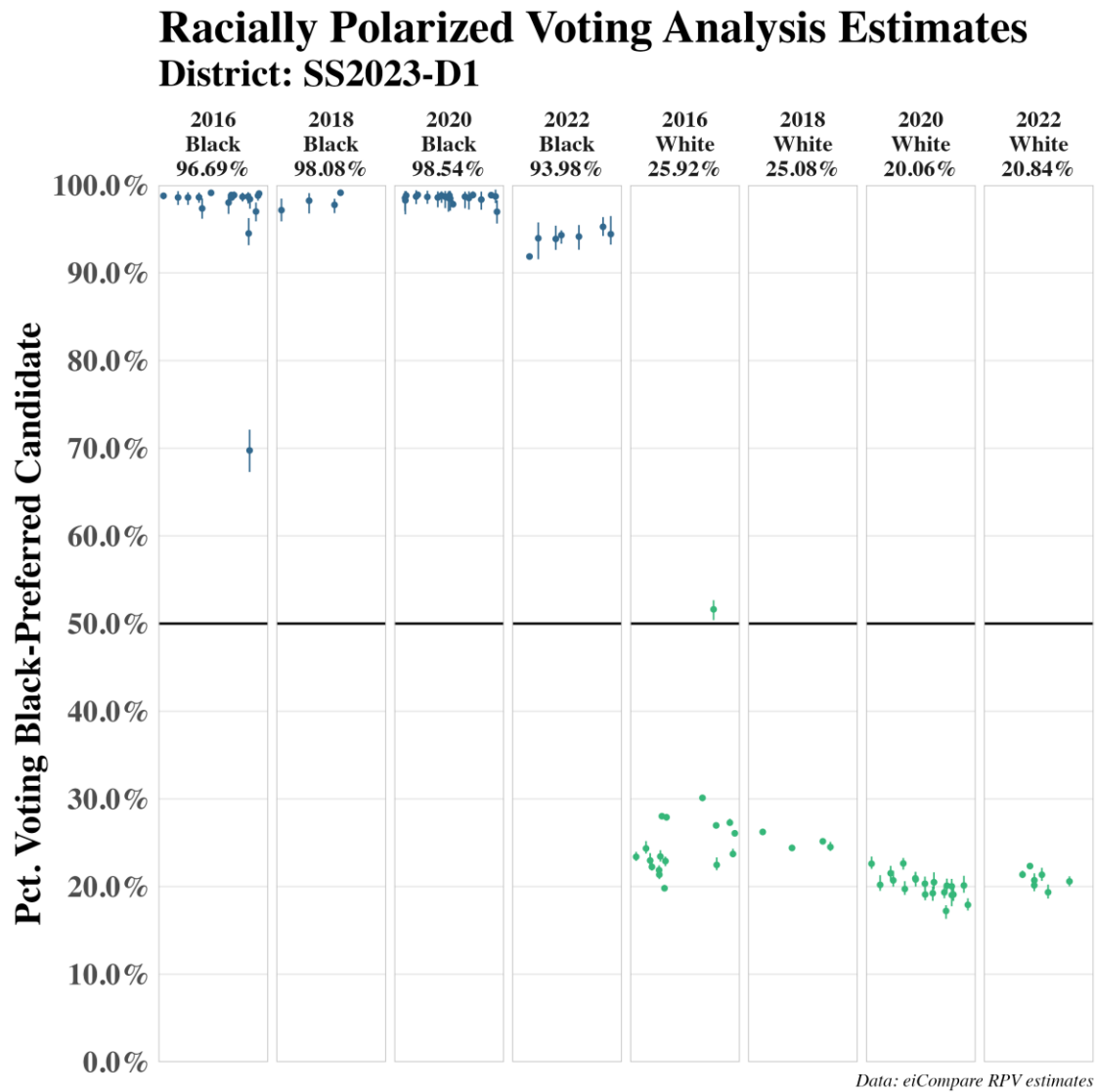
District 2

Figure 3. Racially Polarized Voting coefficient plot. Ecological Inference (EI) results.

Racially Polarized Voting Analysis Estimates
District: SS2023-D2

Data: eiCompare RPV estimates

My analysis shows that Senate Districts 1 and 2 reflect more extreme racially polarized voting than in the state as a whole, and also shows that racial polarization has been growing more extreme in the counties in Senate Districts 1 and 2 since 2016, as white voters have more consistently voted against Black-preferred candidates. Similar to the statewide analysis, on average 97% and 98.6% of Black voters in Districts 1 and 2, respectively, back the same candidate. But white voters in these districts reveal less cross-over voting than white voters statewide. The analysis shows that, on average across all four election cycles, about 22-23% of whites in District 1 back the Black-preferred candidate, whereas in District 2 this number is closer to 19%.

In more recent years, the racial polarization in both Districts is even starker. In 2020 and 2022 in District 1, 20% of white voters backed the Black-preferred candidate. In District 2, only 16% to 17% of White voters backed the Black-preferred candidate in 2020 and 2022.

Demonstration District Areas

I also conducted the same analysis as above but subset to the counties where a majority Black demonstration district can be drawn. This includes the following counties that were part of one or more of Plaintiffs' demonstration districts: Bertie, Chowan, Gates, Halifax, Hertford, Martin, Northampton, Pasquotank, Tyrrell, Vance, Warren, and Washington Counties.

Figure 4 presents the results. As with the State Senate District 1 and 2 analysis, Black voters are extremely cohesive across the four years, maintaining on average between 98-99% support for their preferred candidate. White voters, however, begin the time period supporting the Black-preferred candidate a little over 20% of the time. As time goes on though, with each successive election cycle fewer and fewer white voters cross over to support the Black-preferred candidate such that by 2022 fewer than 12% of white voters on average back the Black-preferred candidate. Averaging across all four years, 15.7% of white voters back the Black-preferred candidate in the Demonstration area.

11

Figure 4. Racially Polarized Voting coefficient plot. Ecological Inference (EI) results. Demonstration district 12-county region.
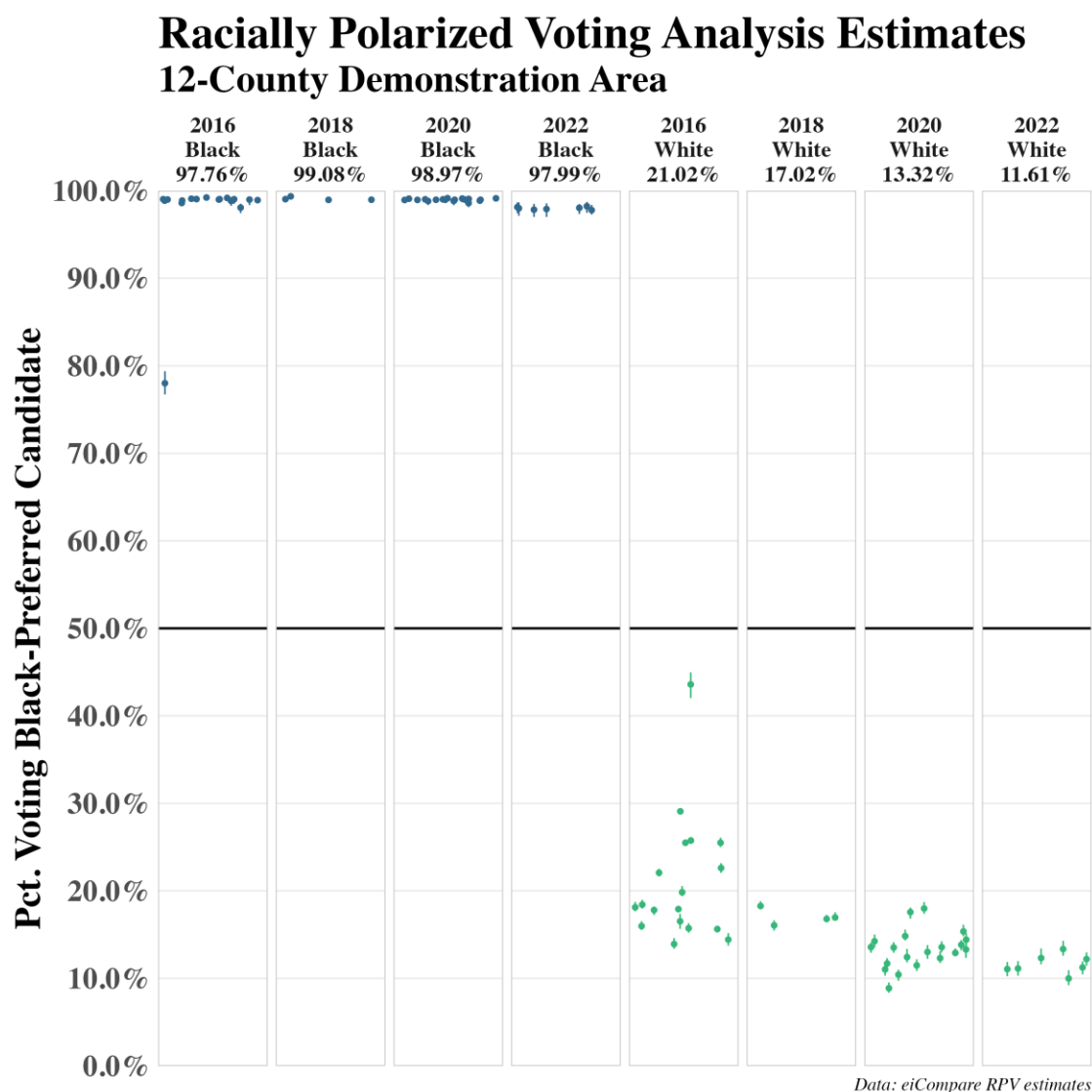

Electoral Performance Analysis

2023 Enacted State Senate Districts 1 and 2

This section investigates whether white voters typically block Black voters from electing their candidate of choice in the 2023-enacted State Senate Districts 1 and 2. The previous section established that white and Black voters consistently prefer different candidates, and this trend is present both statewide and also in the recently enacted State Senate Districts 1 and 2.

To conduct the electoral performance analysis I subset the precinct data to the appropriate counties comprising the respective Districts 1 and 2. For District 1 this includes the following full counties: Bertie, Camden, Currituck, Dare, Gates, Hertford, Northampton, Pasquotank, Perquimans, and Tyrrell. For District 2, this includes the following counties: Chowan, Carteret, Halifax, Hyde, Martin, Pamlico, Warren, and Washington. Then for each contest, I sum the total vote for the Black-preferred candidate, for the white-preferred candidate, and divide by the total vote (which includes other).

Figure 5 presents electoral performance results for 2022 statewide election contests subset to these districts. The results show that the white-preferred candidate (green bar) wins 7 of 7 contests in both Districts 1 and 2. Indeed, the margins are not even close: The white-preferred candidates wins in District 1 by an average of nearly 16 percentage points, and the white-preferred candidates wins in District 2 by an average of just over 19 percentage points.

Figure 5. Electoral Performance Results, 2022, 2023-enacted State Senate Districts 1 and 2.
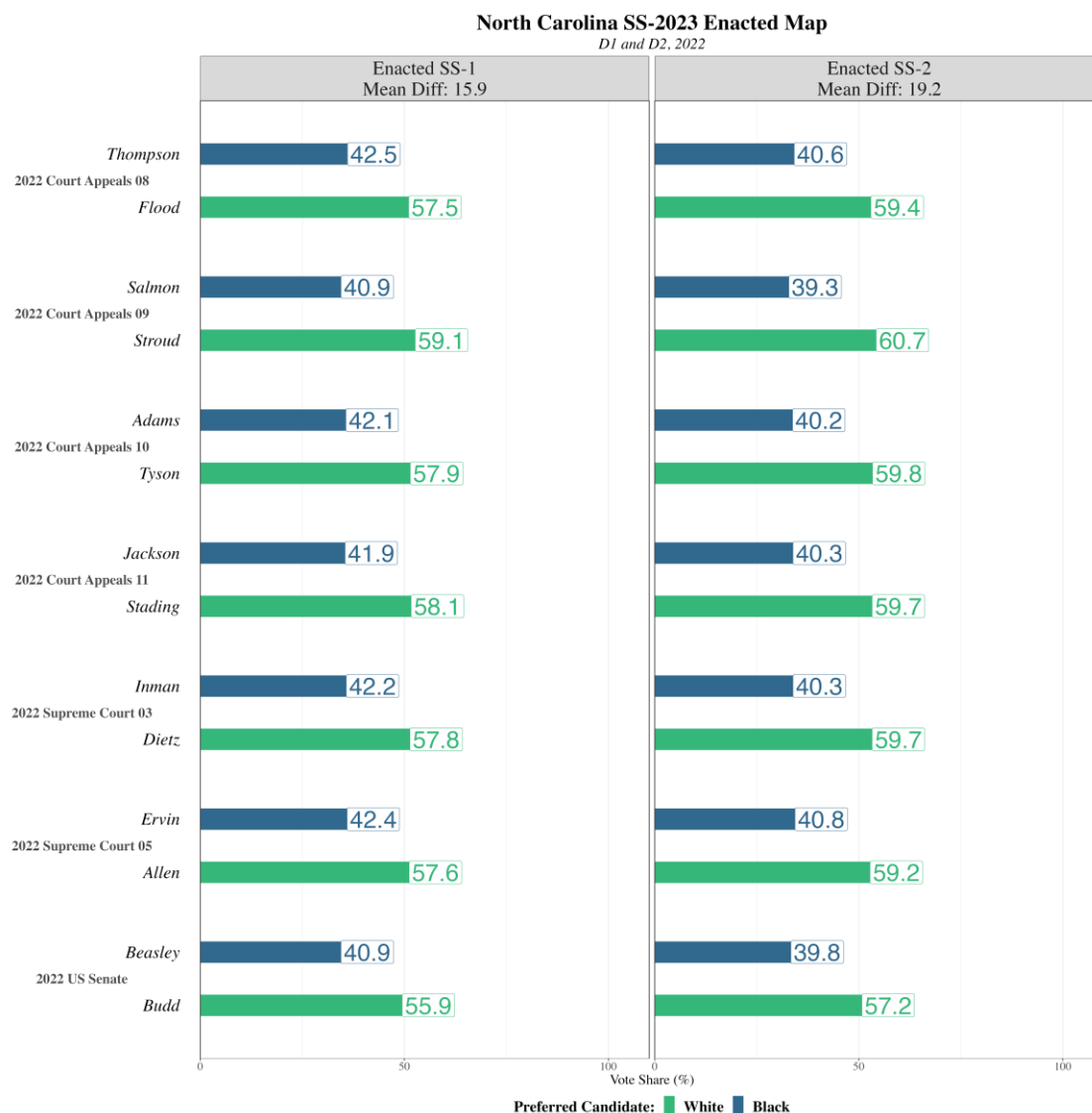
I conducted the same analysis for 2020, 2018, and 2016. The 2020 results once again show the white-preferred candidate prevailing in every single one of the 20 contests, this time by an average of 8 (District 1) and 10 (District 2) percentage points, respectively.

Figure 6. Electoral Performance Results, 2020, 2023-enacted State Senate Districts 1 and 2.


North Carolina SS-2023 Enacted Map
D1 and D2, 2020
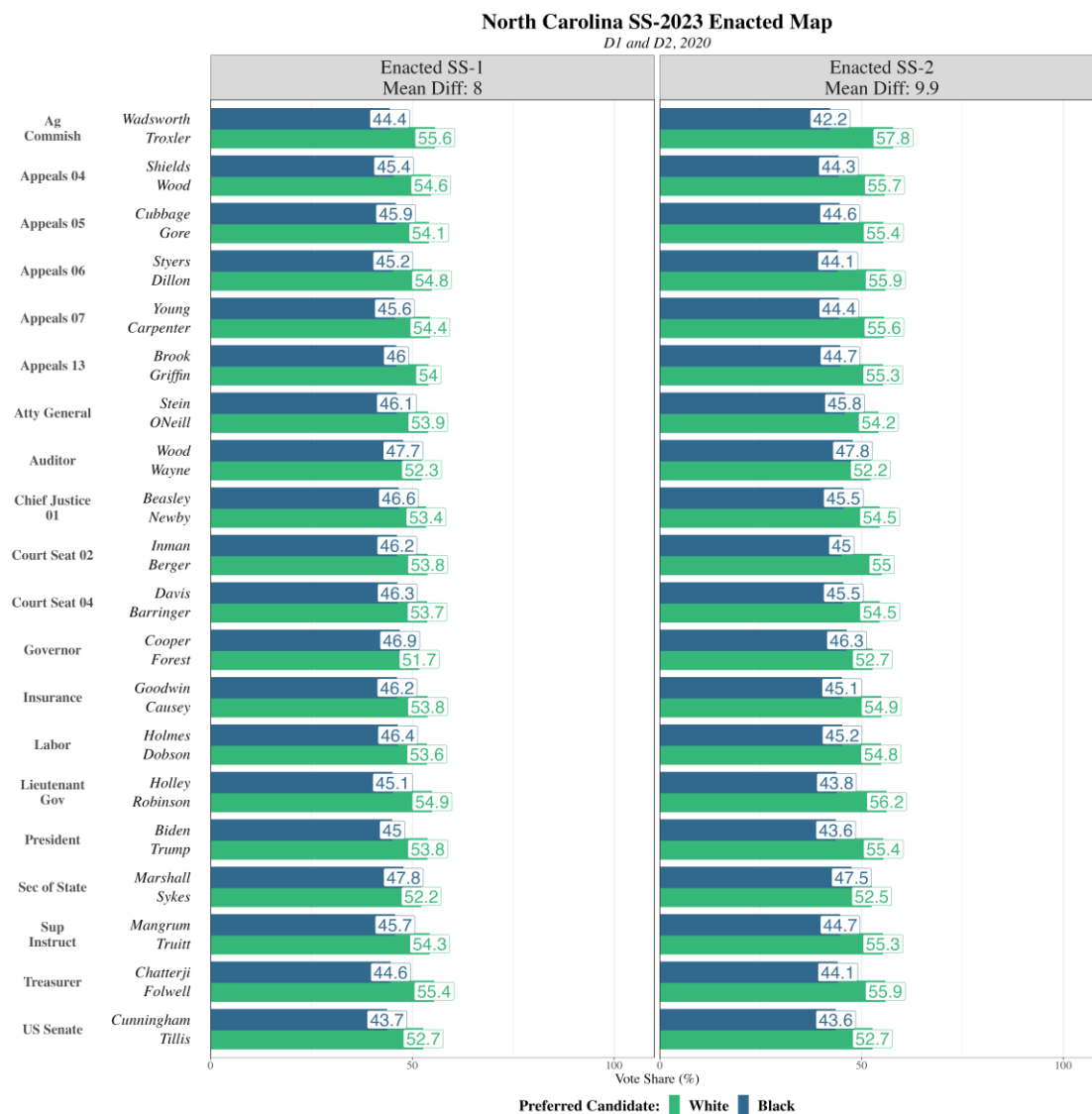
The 2018 results include three statewide North Carolina Court of Appeals contests and one statewide North Carolina Supreme Court contest. The Black-preferred candidate did not win a majority of the vote in enacted State Senate Districts 1 and 2 in any statewide race in 2018. Results from the Court of Appeals race for seat 1, which had two candidates, shows the white-preferred candidate winning in both State Senate Districts 1 and 2. In the election for Court of Appeals seat 3, two candidates (Kitchen and Monaco) received primarily white support and were overwhelmingly opposed by Black voters. See Appendix Figure 18. Neither received more than 2% of the Black vote in Districts 1 and 2. Id. Black voters overwhelmingly preferred a third (Collins, who received more than 98% of the Black vote in both Districts 1 and 2). Together, candidates Kitchen and Monaco won an

14

outright majority of the vote in Districts 1 and 2, and candidate Kitchen won a plurality of the vote.

In the election for Court of Appeals seat 2, two candidates (Griffin and Ray) received primarily white support and were overwhelmingly opposed by Black voters. See Appendix Figure 20. Neither received more than 2.5% of the Black vote in Districts 1 and 2. Id. Those two candidates received a combined majority of the vote, while the Black-preferred candidate (Hampson) received a minority of the vote. While the Black-preferred candidate recorded the highest vote total among the three candidates in the enacted Districts 1 and 2 because white voters split their vote, the Black-preferred candidate only won a minority of the vote overall, reflecting that in a two-candidate race, white bloc voting would successfully defeat the Black-preferred candidate. The same holds for the State Supreme Court election: if we add the two white-preferred candidate results together, the results show the white-preferred candidates winning the majority of the vote in both districts in both contests, and the Black-preferred candidate winning a minority of the vote. The Black-preferred candidate did not win a majority of the vote in Senate Districts 1 and 2 in any statewide race in 2018.

Figure 7. Electoral Performance Results, 2018, 2023-enacted State Senate Districts 1 and 2.
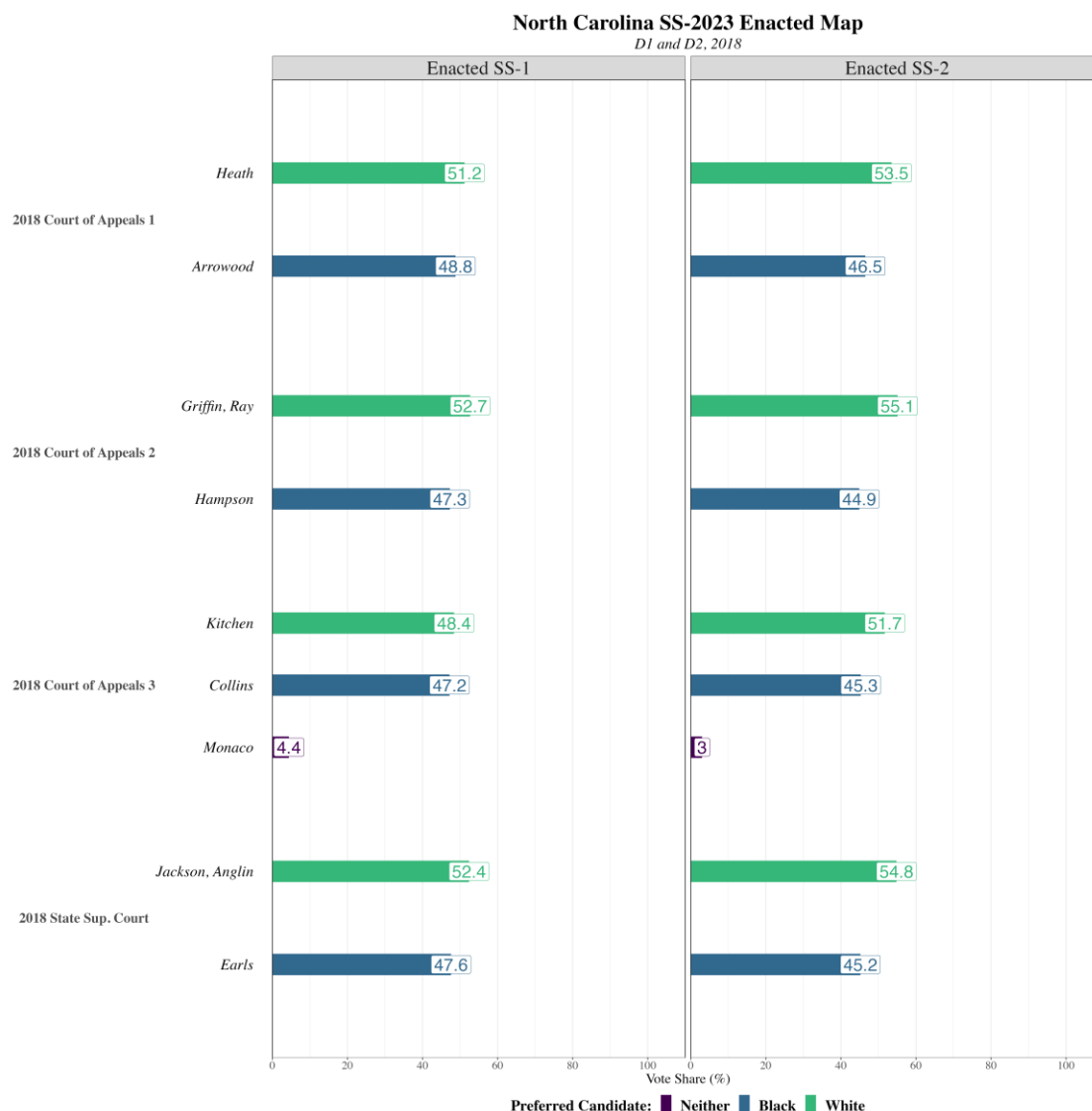
Finally, the 2016 election featured 18 separate statewide election contests. The Black-preferred candidate loses in the majority of elections in Senate Districts 1 and 2 in 2016, including by significant margins in major elections like Governor, Lieutenant Governor, Attorney General, U.S. Senate, and President. In general, in situations involving new districts that have not been used before, statewide races involving candidates at the top of the ticket are most relevant and informative for assessing racially polarized voting, Notably, these 5 races—Governor, Lieutenant Governor, Attorney General, U.S. Senate, and President—are the only races from 2016 that the General Assembly used to assess the performance of the 2023 state Senate districts in its online statistical package.[8] The White-


16

preferred candidate prevails and the Black-preferred candidate loses across all 5 of these major statewide races in Districts 1 and 2.

However, I have included all of the statewides in 2016 for completeness. Many of the down-ballot races were more competitive. Overall, the white-preferred candidate prevails in District 1 in 12 out of 18 statewide races from 2016, and prevails in District 2 in 13 out of 18 statewide races from 2016. These results highlight the growing level of racial polarization in Districts 1 and 2. For example, the 2016 election shows clear evidence of ticket-splitting, where the same white voters who opposed the Black-preferred candidate for President vote for Black-preferred down-ballot candidates like Elaine Marshall, a long-time incumbent, for Secretary of State. Marshall won Districts 1 and 2 in 2016 with 52.5% and 52.3% of the vote, while Black-preferred candidates at the top of the ticket, like Governor Cooper, lost in those districts with 46.7% and 45.8% percent of the vote. As reflected in Figure 5, by 2020, white bloc voting had increased such that Secretary Marshall lost in Districts 1 and 2. While Secretary Marshall received 30.1% and 28.6% of the white vote in 2016 in Districts 1 and 2, she received 22.6% and 20.1% of the white vote in 2020. See Appendix Figures 16, 21.

The figures show that the same trend is reflected when you compare many other down-ballot races in 2016 against races in 2020 and 2022.

Figure 8. Electoral Performance Results, 2016, 2023-enacted State Senate Districts 1 and 2.
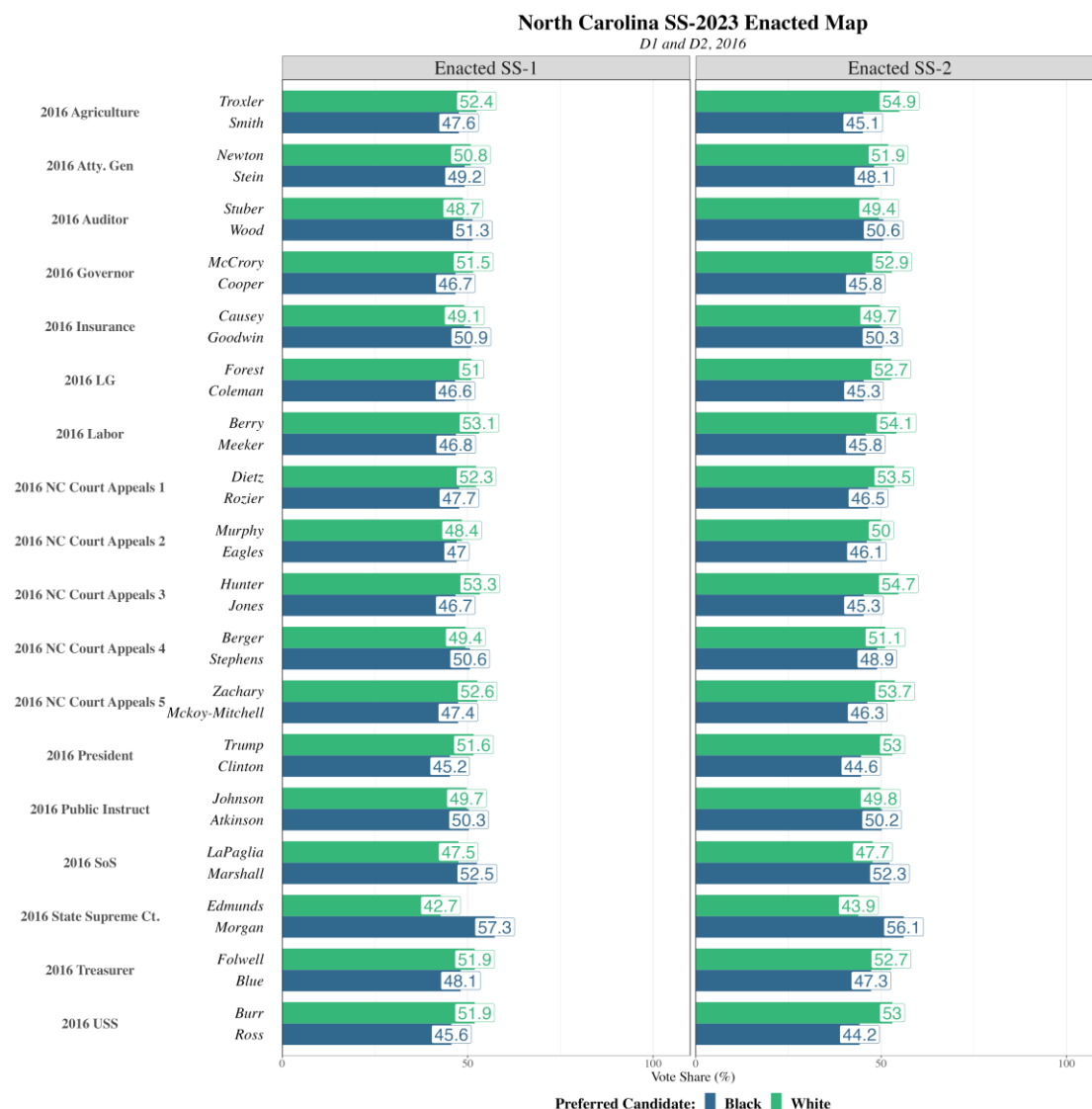
Overall Results

In total, for the performance analysis I examined 49 separate election contests over four election cycles from 2016-2022. The clear trend is that Black-preferred candidates do worse across time in Districts 1 and 2. In 2020 and 2022, white bloc voting defeats the Black-preferred candidate of choice 100% of the time, in 27 out of 27 contests, by wide margins. The results are similar using the four 2018 races, with no Black-preferred candidate receiving a majority of the vote in District 1 and District 2, though in two cases that candidate did receive a plurality of the vote. Interpreting election results in which the Black-preferred candidate won only a minority of the vote to constitute an election in which white bloc voting will work in Districts 1 and District 2, the 2018 races show white bloc voting defeating Black-preferred candidates 100% of the time. In 2016, the white-

preferred candidate wins two-thirds or more of the time, and wins the major races of President, Governor, Lieutenant Governor, Attorney General, and U.S. Senate.

Thus, for the 2023-enacted State Senate District 1, if we consider 2018 contests as white blocking, the white-preferred candidate prevailed in 43 of the 49 contests (Block rate: 88%). If we do not consider the two three-way 2018 contests where the Black candidate received the plurality as blocking, the block rate drops a bit to 41 of 49 (Block rate: 84%).

For the 2023-enacted State Senate District 2, if we consider 2018 contests as white blocking, the white-preferred candidate prevailed in 44 of the 49 contests (Block rate: 90%). If we do not consider the two three-way 2018 contests as blocking where the Black candidate received the plurality as blocking, the block rate drops a bit to 42 of 49 (Block rate: 86%). Either way, these findings provide strong evidence for a Gingles III conclusion: In 2023-enacted State Senate Districts 1 and 2, white bloc voting will usually (and always in the most recent elections) prevent Black voters from electing their candidates of choice.

Demonstration Maps

I conducted the same electoral performance analysis on four demonstration maps provided to me by plaintiffs. Each of these four maps generates a hypothetical district that is at least 50% estimated Black CVAP (Gingles 1) in the region where the enacted State Senate Districts 1 and 2 are located.

Figure 9 shows the 2022 election results in these demonstration districts. In the seven contests analyzed, the Black-preferred candidate wins each time in all four demonstration districts by an average margin of 10 percentage points in Demonstration District A, six percentage points in Demonstration District B, seven points in Demonstration District C, and a bit more than seven percentage points in Demonstration District D.

Figure 9. Electoral Performance Results, 2022, Demonstration District
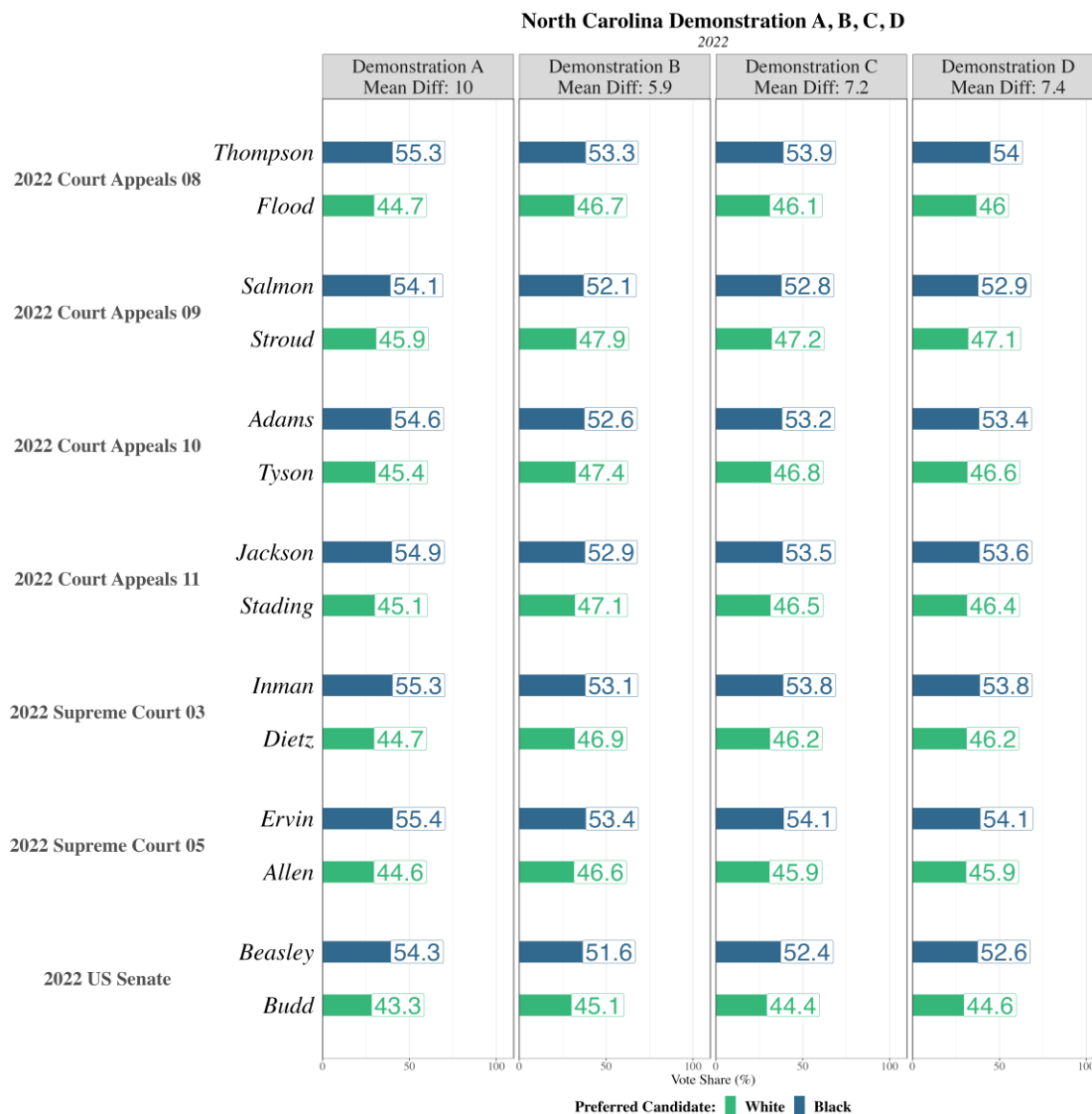

Figure 10 shows the 2020 findings, which again reveal that the Black-preferred candidate wins in 20 out of 20 election contests. In Demonstration District A the average margin of victory is 21 percentage points, whereas the average victory margin in Demonstration District B is 16 percentage points. In Demonstration District C the average margin of victory is nearly 19 percentage points, and in Demonstration District D it is nearly 18 points.

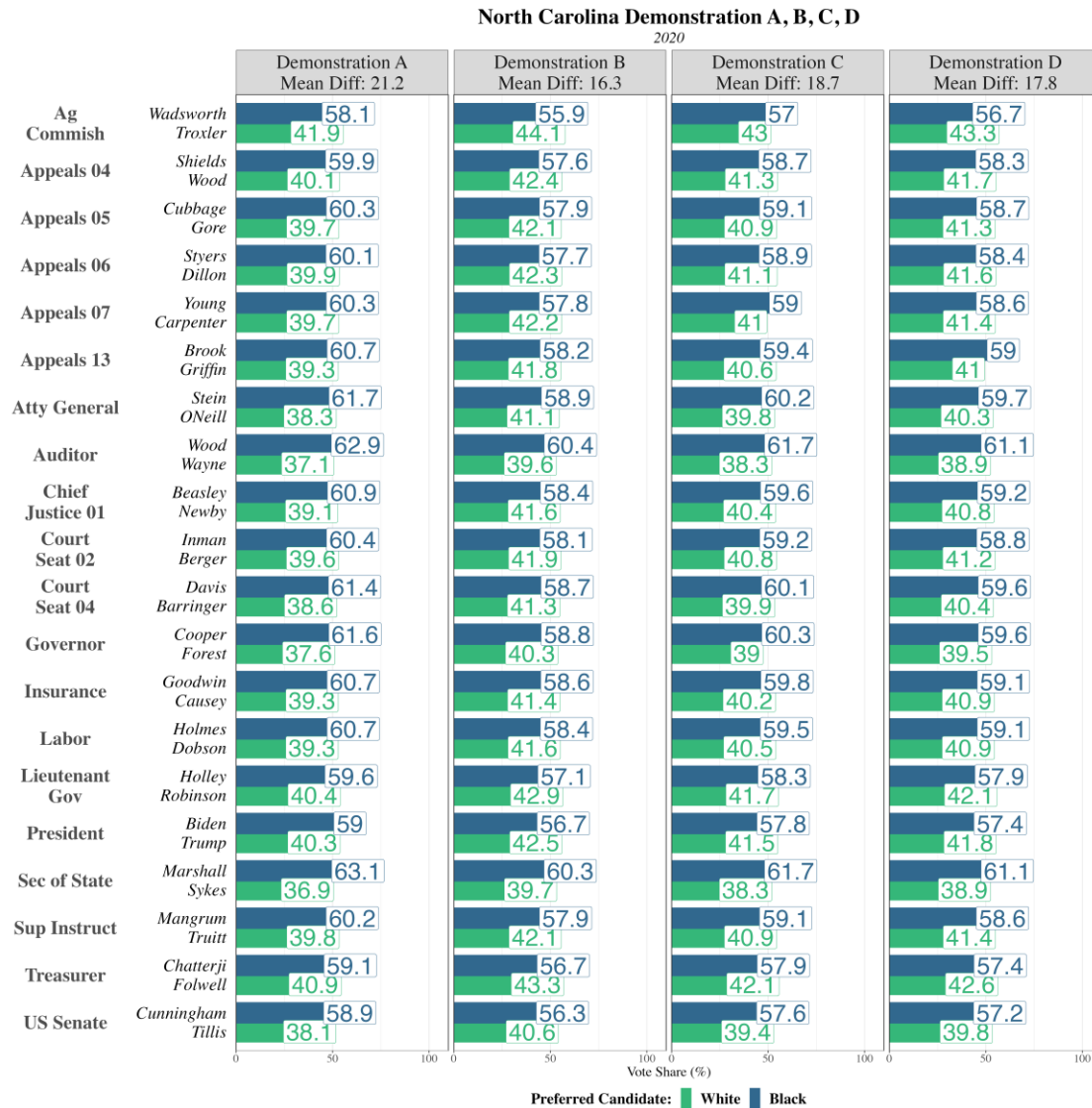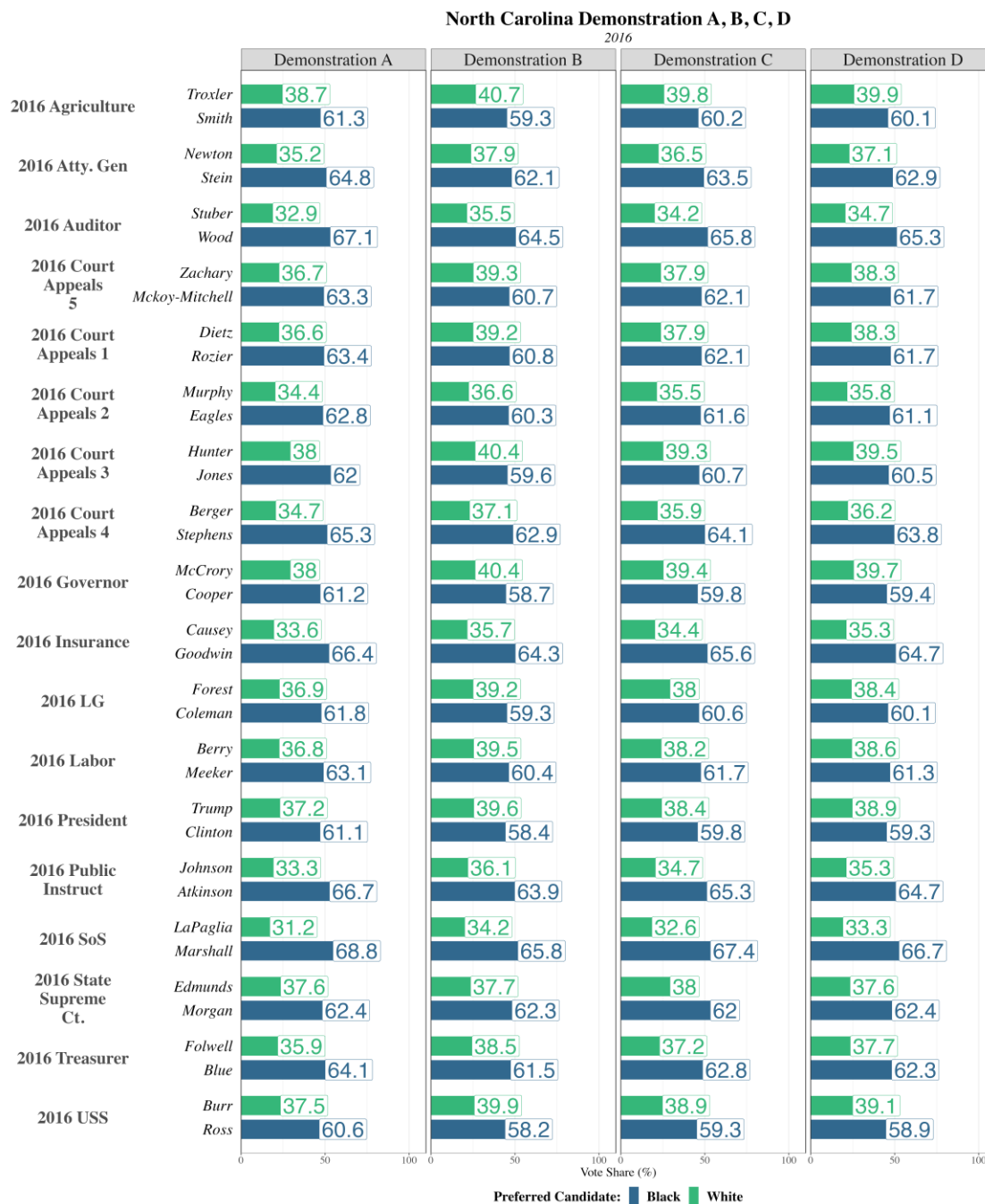**Figure 10.** Electoral Performance Results, 2020, Demonstration District

Figure 11 presents the 2018 results. The results show that the Black-preferred candidate wins more than 60% of the vote in all four contests in Demonstration District A, and nearly 60% of the vote in Demonstration District B. Similarly in Demonstration Districts C and D, the Black-preferred candidate routinely wins between 59%-60.5% of the vote.

Figure 11. Electoral Performance Results, 2018, Demonstration District.

North Carolina Demonstration A, B, C, D
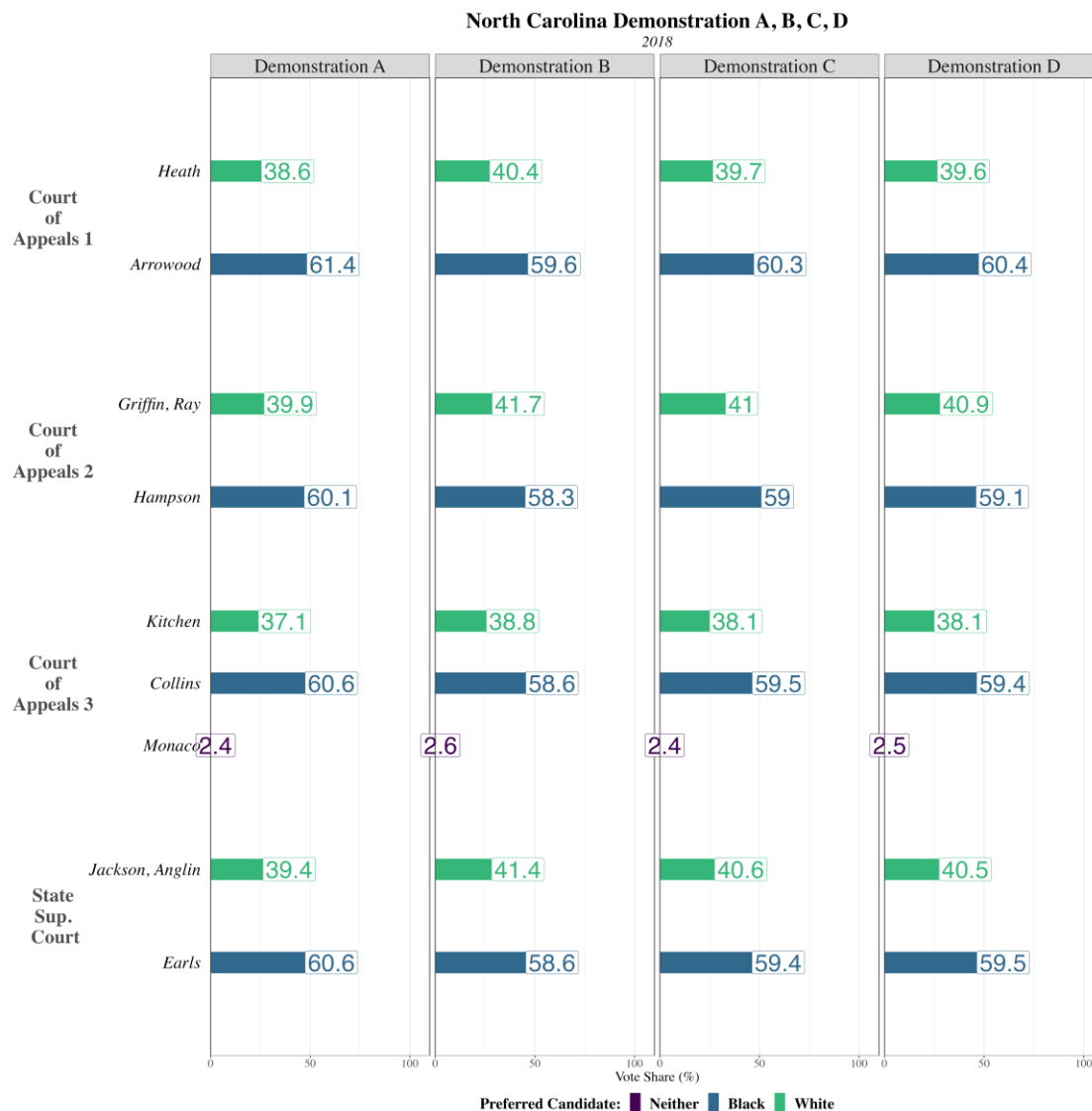
Finally, Figure 12 presents the Demonstration Districts A, B, C, and D performance results using 2016 elections. The results comport with the earlier findings: the Black-preferred candidate handily wins each contest in all four demonstration districts – typically by a margin of greater than 20 percentage points.

Figure 12. Electoral Performance Results, 2016, Demonstration District

North Carolina Demonstration A, B, C, D
2016

		Demonstration A	Demonstration B	Demonstration C	Demonstration D
2016 Agriculture	Troxler	38.7	40.7	39.8	39.9
	Smith	61.3	59.3	60.2	60.1
2016 Atty. Gen	Newton	35.2	37.9	36.5	37.1
	Stein	64.8	62.1	63.5	62.9
2016 Auditor	Stuber	32.9	35.5	34.2	34.7
	Wood	67.1	64.5	65.8	65.3
2016 Court Appeals 5	Zachary	36.7	39.3	37.9	38.3
	Mckoy-Mitchell	63.3	60.7	62.1	61.7
2016 Court Appeals 1	Dietz	36.6	39.2	37.9	38.3
	Rozier	63.4	60.8	62.1	61.7
2016 Court Appeals 2	Murphy	34.4	36.6	35.5	35.8
	Eagles	62.8	60.3	61.6	61.1
2016 Court Appeals 3	Hunter	38	40.4	39.3	39.5
	Jones	62	59.6	60.7	60.5
2016 Court Appeals 4	Berger	34.7	37.1	35.9	36.2
	Stephens	65.3	62.9	64.1	63.8
2016 Governor	McCrory	38	40.4	39.4	39.7
	Cooper	61.2	58.7	59.8	59.4
2016 Insurance	Causey	33.6	35.7	34.4	35.3
	Goodwin	66.4	64.3	65.6	64.7
2016 LG	Forest	36.9	39.2	38	38.4
	Coleman	61.8	59.3	60.6	60.1
2016 Labor	Berry	36.8	39.5	38.2	38.6
	Meeker	63.1	60.4	61.7	61.3
2016 President	Trump	37.2	39.6	38.4	38.9
	Clinton	61.1	58.4	59.8	59.3
2016 Public Instruct	Johnson	33.3	36.1	34.7	35.3
	Atkinson	66.7	63.9	65.3	64.7
2016 SoS	LaPaglia	31.2	34.2	32.6	33.3
	Marshall	68.8	65.8	67.4	66.7
2016 State Supreme Ct.	Edmunds	37.6	37.7	38	37.6
	Morgan	62.4	62.3	62	62.4
2016 Treasurer	Folwell	35.9	38.5	37.2	37.7
	Blue	64.1	61.5	62.8	62.3
2016 USS	Burr	37.5	39.9	38.9	39.1
	Ross	60.6	58.2	59.3	58.9

Vote Share (%)

Preferred Candidate: ■ Black ■ White

BVAP Analysis

The fourth main focus of my report uses the RPV results as well as turnout estimates by race to estimate the threshold where changes in Black Voting Age Population within a possible district produce a likely victory for the Black-preferred candidate. Essentially, it may be useful to know what the Black VAP of a district needs to be – based on existing data

– in order to elect a candidate of choice for Black voters. In this analysis, I focus my analysis on the region that makes up the demonstration districts – for this is where a performing Black district can be drawn. These include the following counties: Bertie, Chowan, Gates, Halifax, Hertford, Martin, Northampton, Pasquotank, Tyrrell, Vance, Warren, and Washington Counties. I use an area wider than any of the demonstration districts, RPV estimates, as well as turnout calculations, so the results require more steps than an electoral performance analysis that strictly looks at election results given a district. Therefore, these BVAP estimates are thought of as guideposts.

I conduct this analysis using data from all contests in the 2022 and 2020 elections because the more recent elections are better predictors of future performance. In this way we can observe changes between presidential and midterm years where turnout rates change. The method first calculates how white and Black voters vote in a given election using ecological inference. I then divide the number of Black voters who actually cast a ballot that election year by the total number of Black voting age population. I do the same for white voters. In this way we know then if we fix (via simulation) Black VAP at a certain percentage what the estimated Black composition of the electorate will be. Additionally, because the non-Black, non-white population is so small in this area, estimating RPV for groups other than whites and Blacks in this area has limited utility. Therefore, my BVAP analysis focuses on the Black-white comparison.

I then simulate what the electorate demographically looks like as we range Black VAP from 0-100. Figure 13 shows the results of the 27 contests from 2020-2022 that I analyzed. This is a histogram distribution of the estimated Black VAP required in a particular contest for the Black-preferred candidate to win. The mean of this distribution is 47.07% Black VAP – which is, given the data, the best fit BVAP estimate that on average (i.e., not always) would enable Black-preferred candidates to achieve a narrow 50%+1 victory.

Figure 13. BVAP simulation analysis, All 2020-2022 contests.
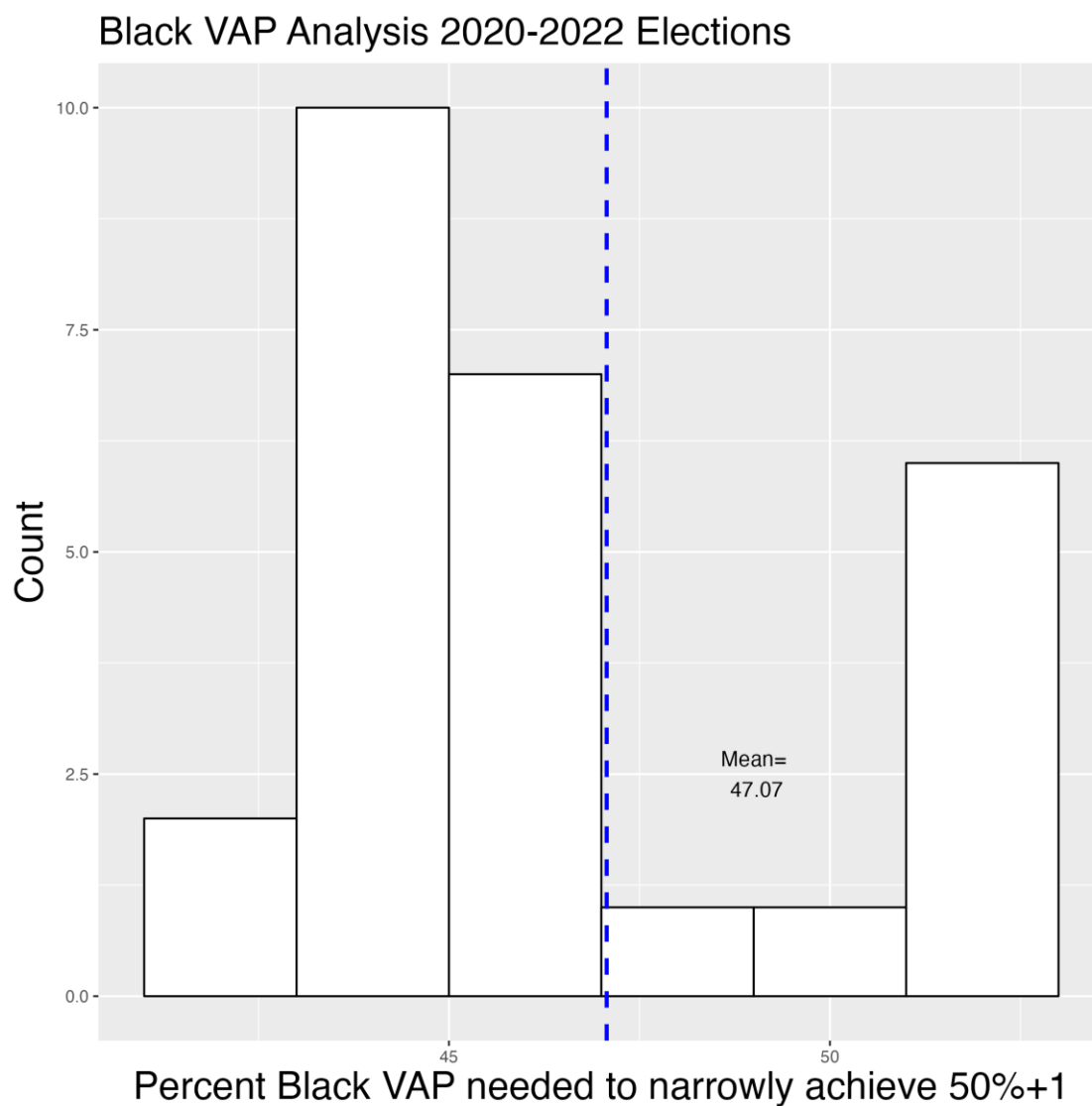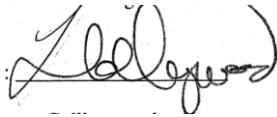

Conclusion

This report assessed the 2023-enacted State Senate map in North Carolina with a particular focus on the northeastern part of the state (Districts 1 and 2). Voting is highly polarized by race. I assessed 49 election contests over four election cycles from 2016-2022 in 2023 enacted State Senate Districts 1 and 2. Every single contest shows that Black voters are

extremely cohesive in vote choice (Gingles II). Further, white voters are cohesive in their vote but for a different candidate. Moreover, white voters consistently block Black voters from electing their preferred candidate (Gingles III). Indeed, the results are overwhelming. By contrast, Demonstration Districts A, B, C, and D would perform for Black voters. A BVAP analysis based on 2022 and 2020 election data shows that a district in the demonstration area needs to be on average 47% Black VAP for Black voters to elect a candidate of choice.

Pursuant to 28 U.S.C. § 1746, I, Loren Collingwood, declare the foregoing is true and correct.

_____

Dr. Loren Collingwood

Dated: May 31, 2024

Appendix

2022 RPV

Figure 14. Racially polarized voting 2022 contests. Statewide.

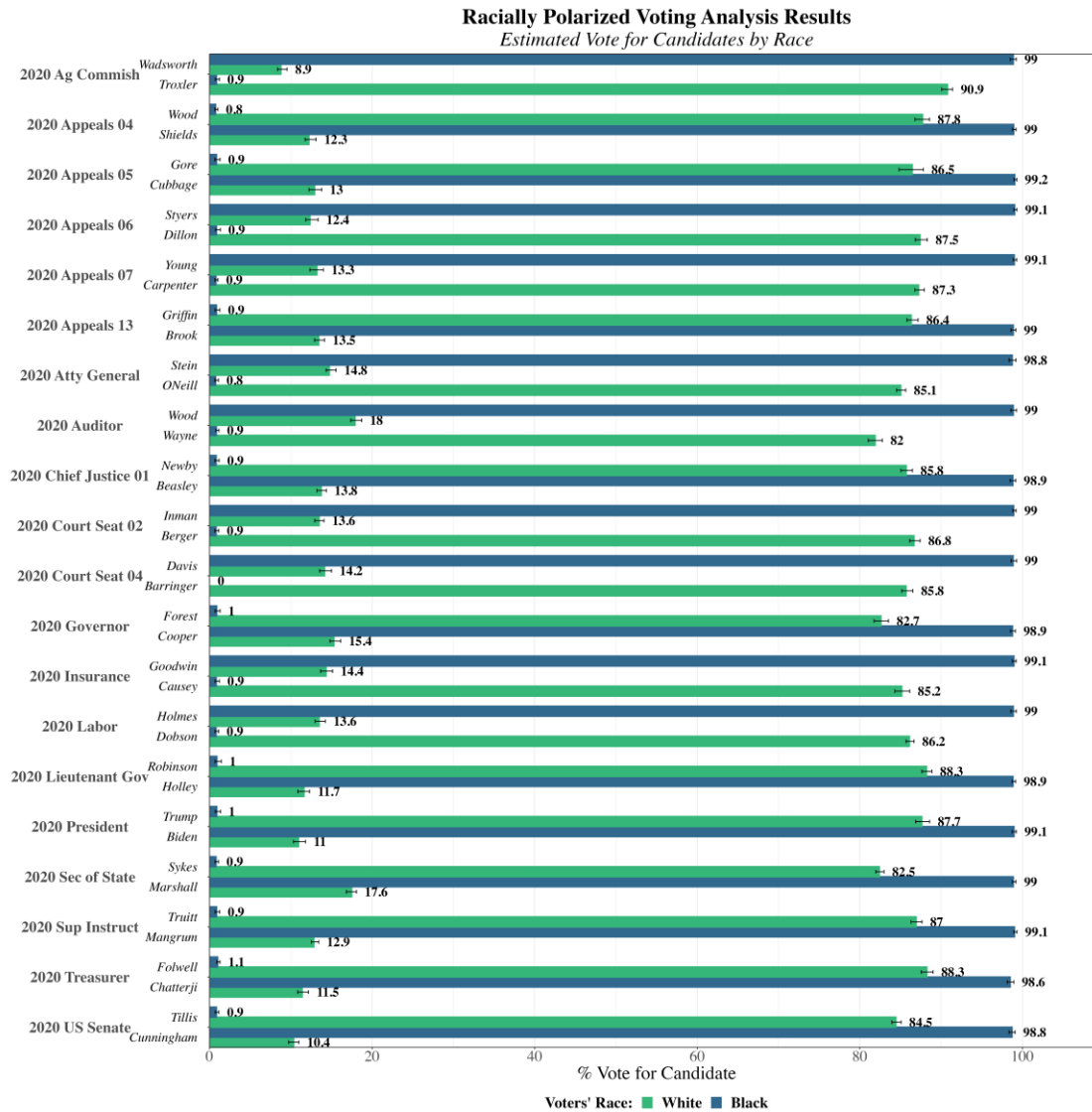**Racially Polarized Voting Analysis Results**
Estimated Vote for Candidates by Race
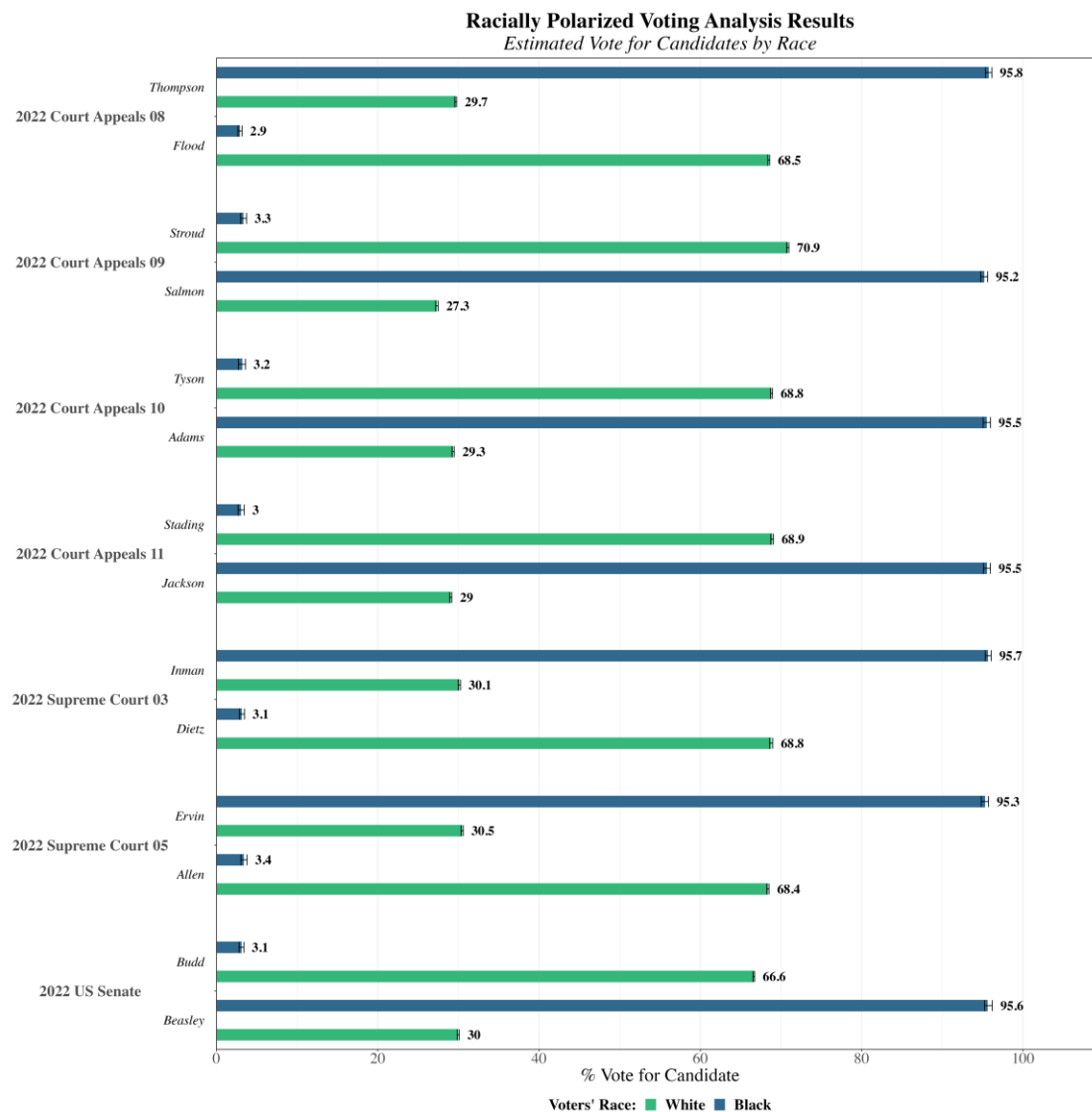
Figure 15. Racially polarized voting 2022 contests. Enacted State Senate Districts 1 and 2.

Racially Polarized Voting Analysis Results
Estimated Vote for Candidates by Race
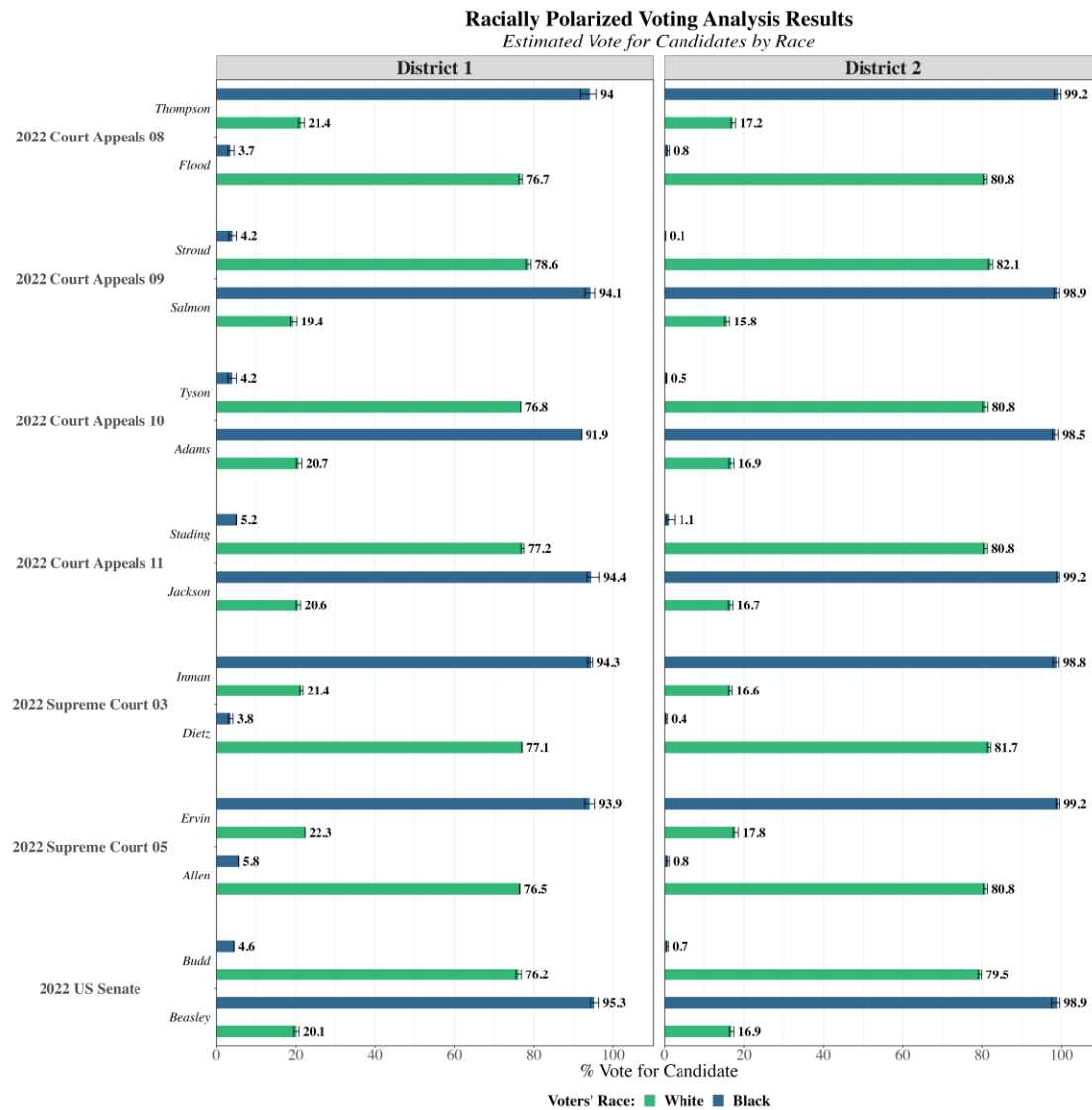
Figure 16. Racially polarized voting 2022 contests. Demonstration district county area.

Racially Polarized Voting Analysis Results
Estimated Vote for Candidates by Race
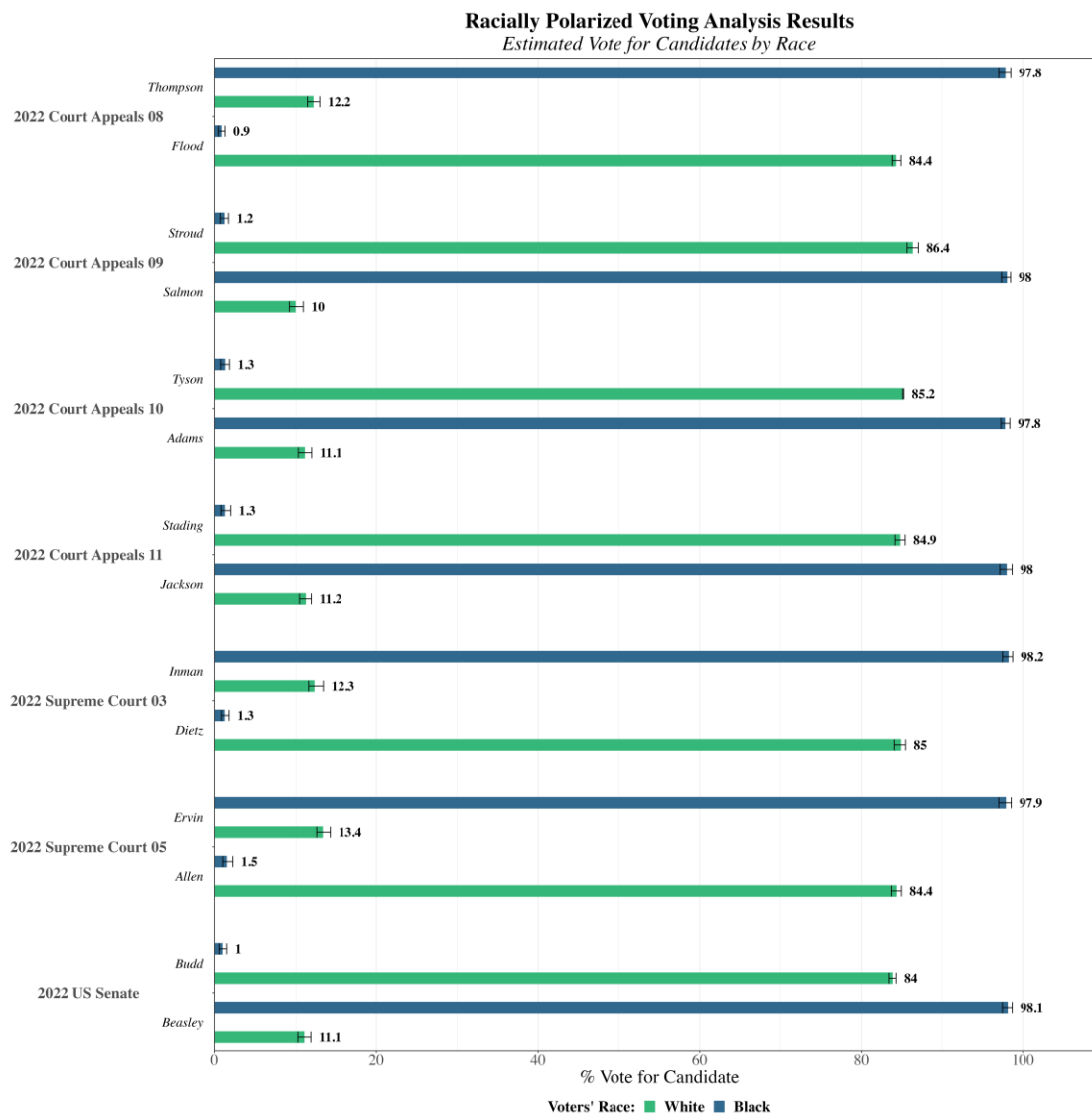
2020 RPV

Figure 17. Racially polarized voting 2020 contests. Statewide.

Racially Polarized Voting Analysis Results
Estimated Vote for Candidates by Race
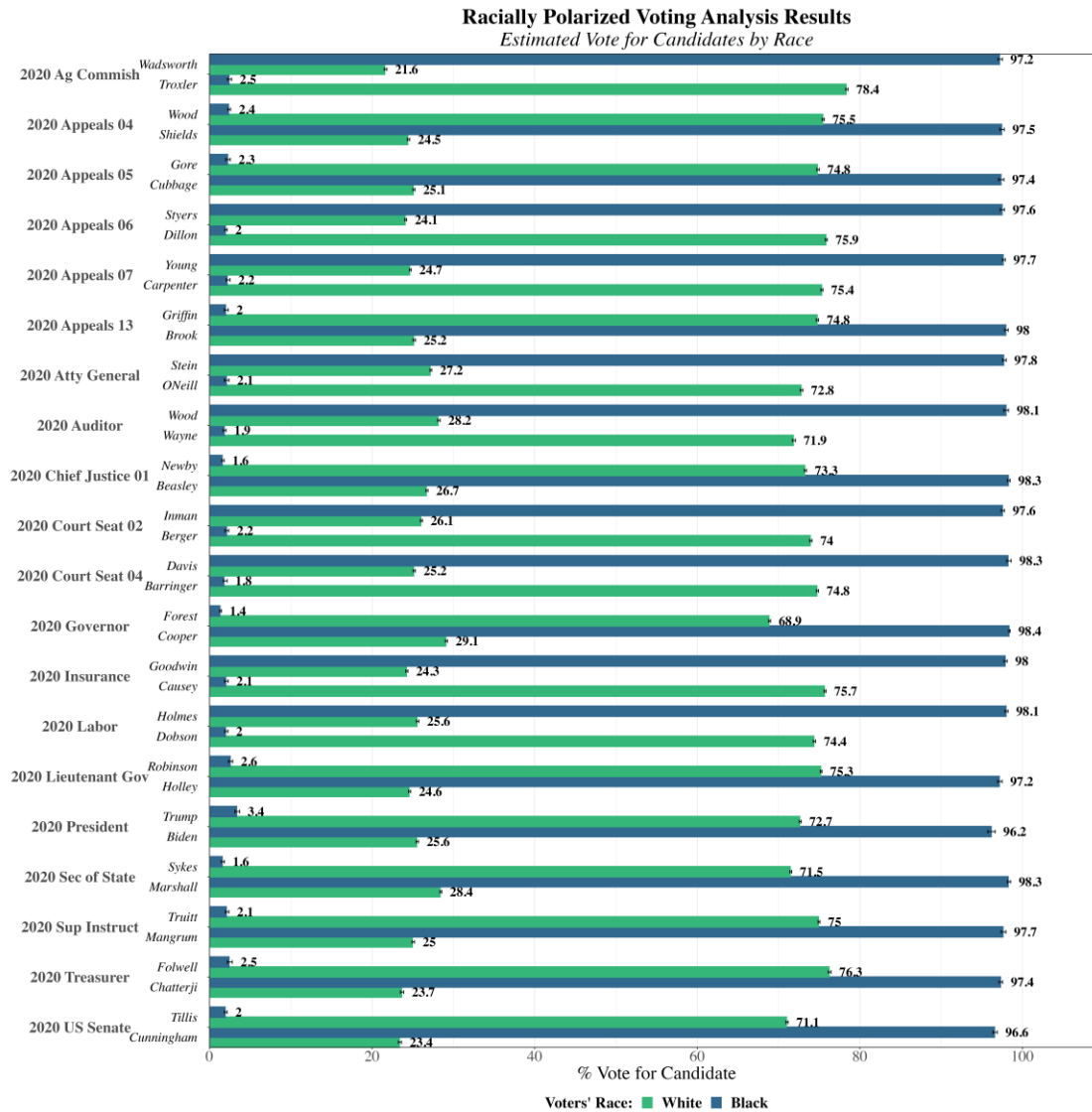
Figure 18. Racially polarized voting 2020 contests. Enacted State Senate Districts 1 and 2.
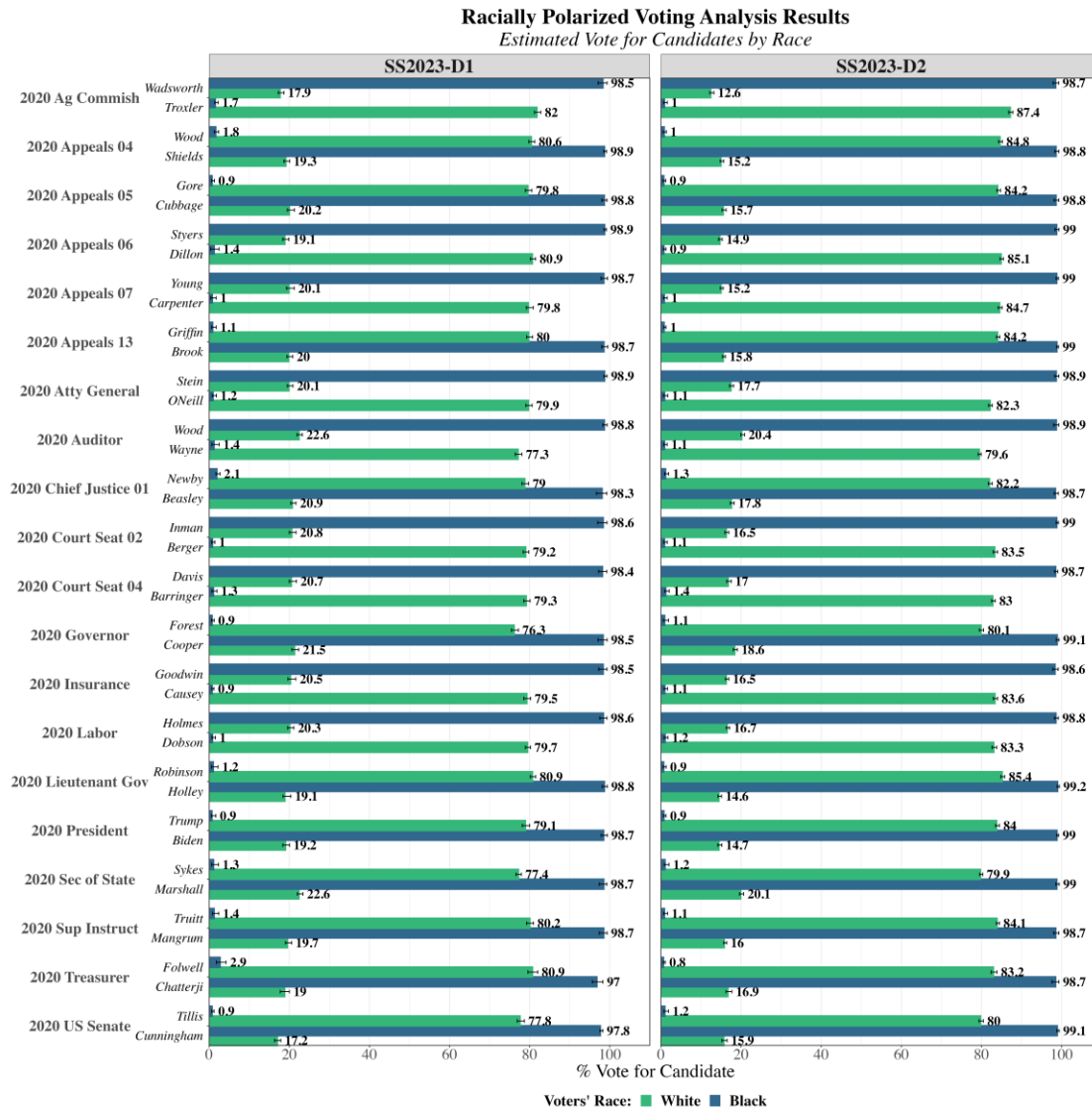
Figure 19. Racially polarized voting 2020 contests. Demonstration district county area.

Racially Polarized Voting Analysis Results
Estimated Vote for Candidates by Race

Figure 20. Racially polarized voting 2018 contests. Statewide. Collapsed Republican candidates.
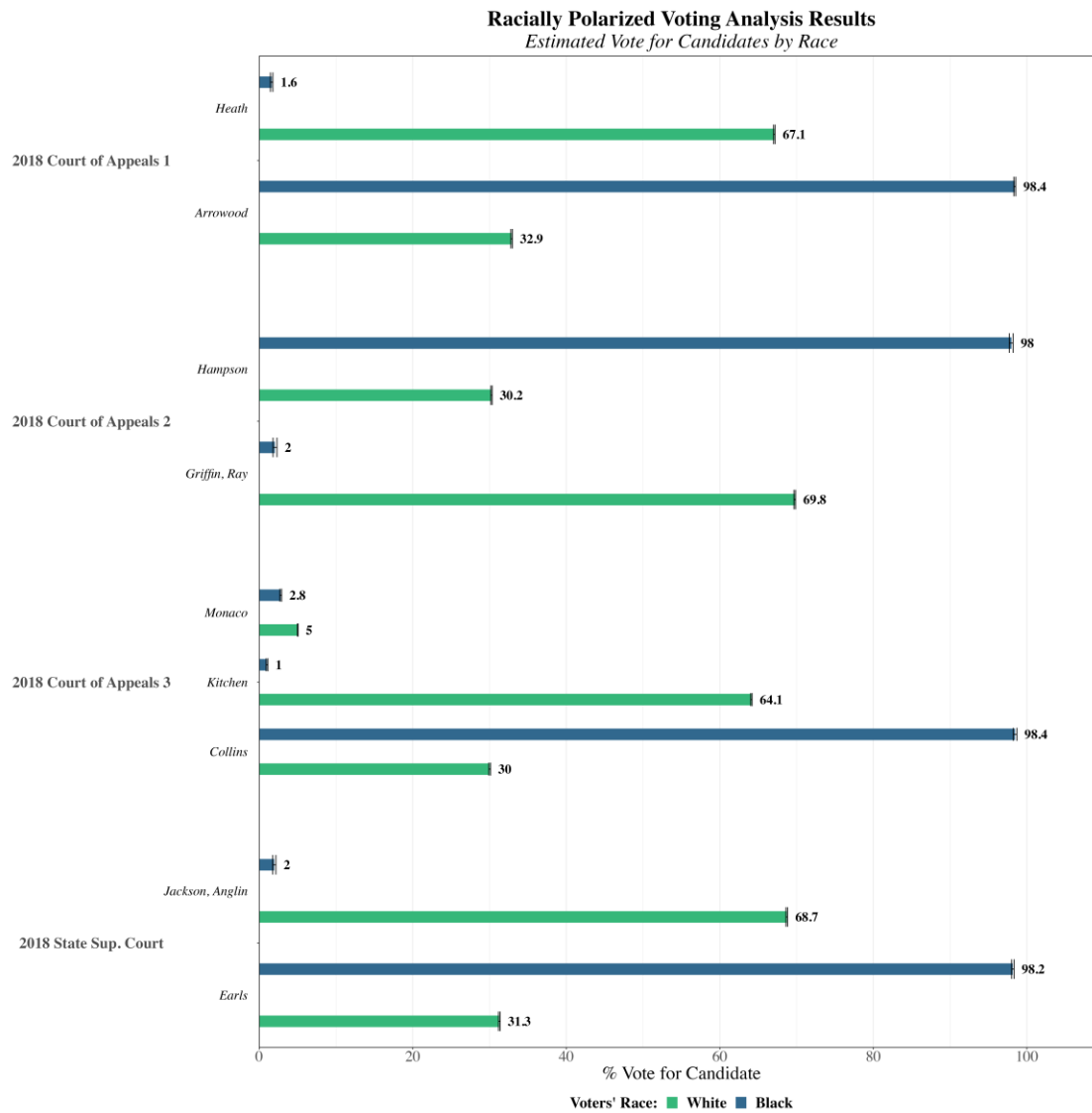
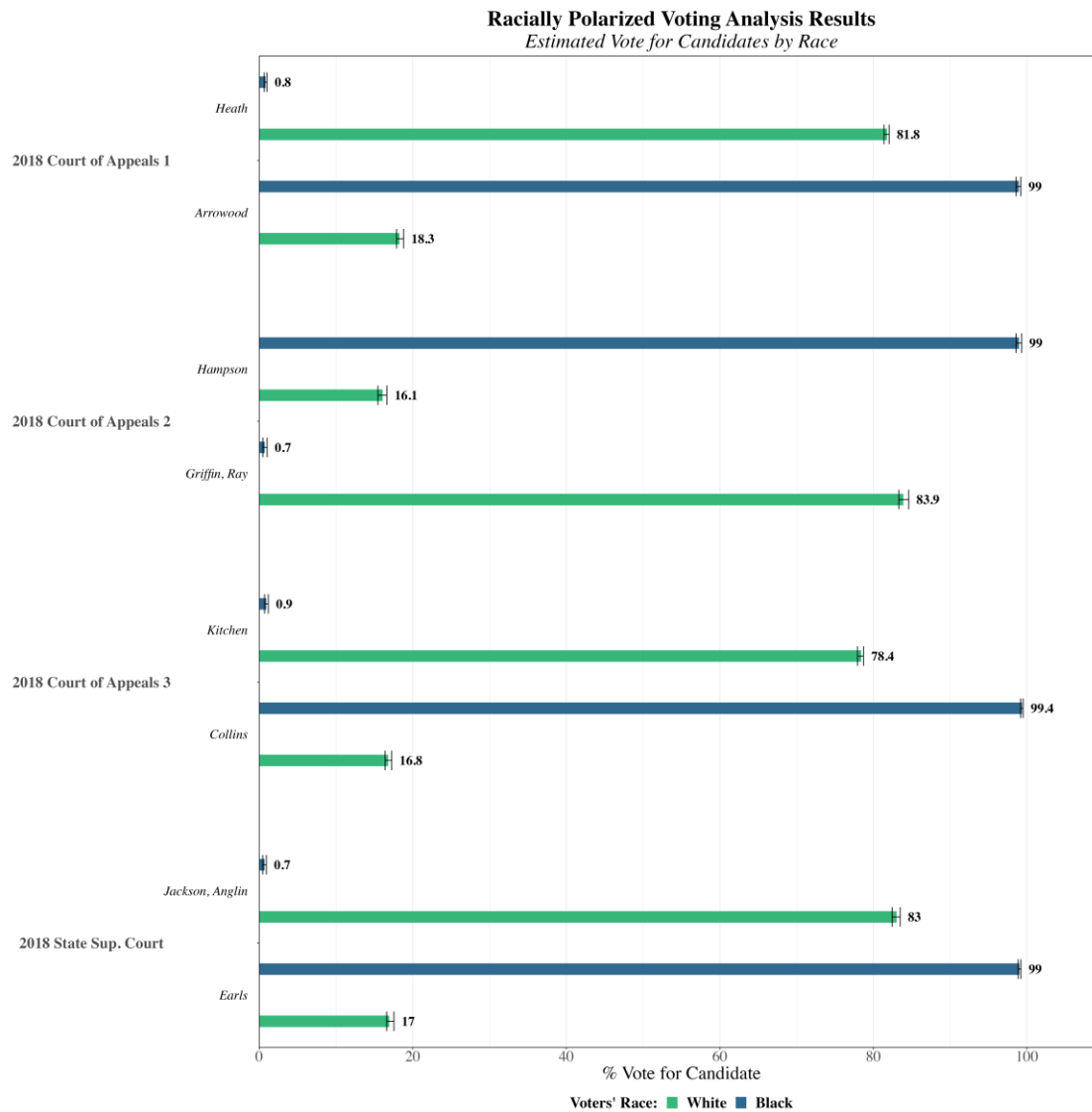**Figure 21.** Racially polarized voting 2018 contests. Statewide. Keep Republican candidates separate.

Racially Polarized Voting Analysis Results
Estimated Vote for Candidates by Race
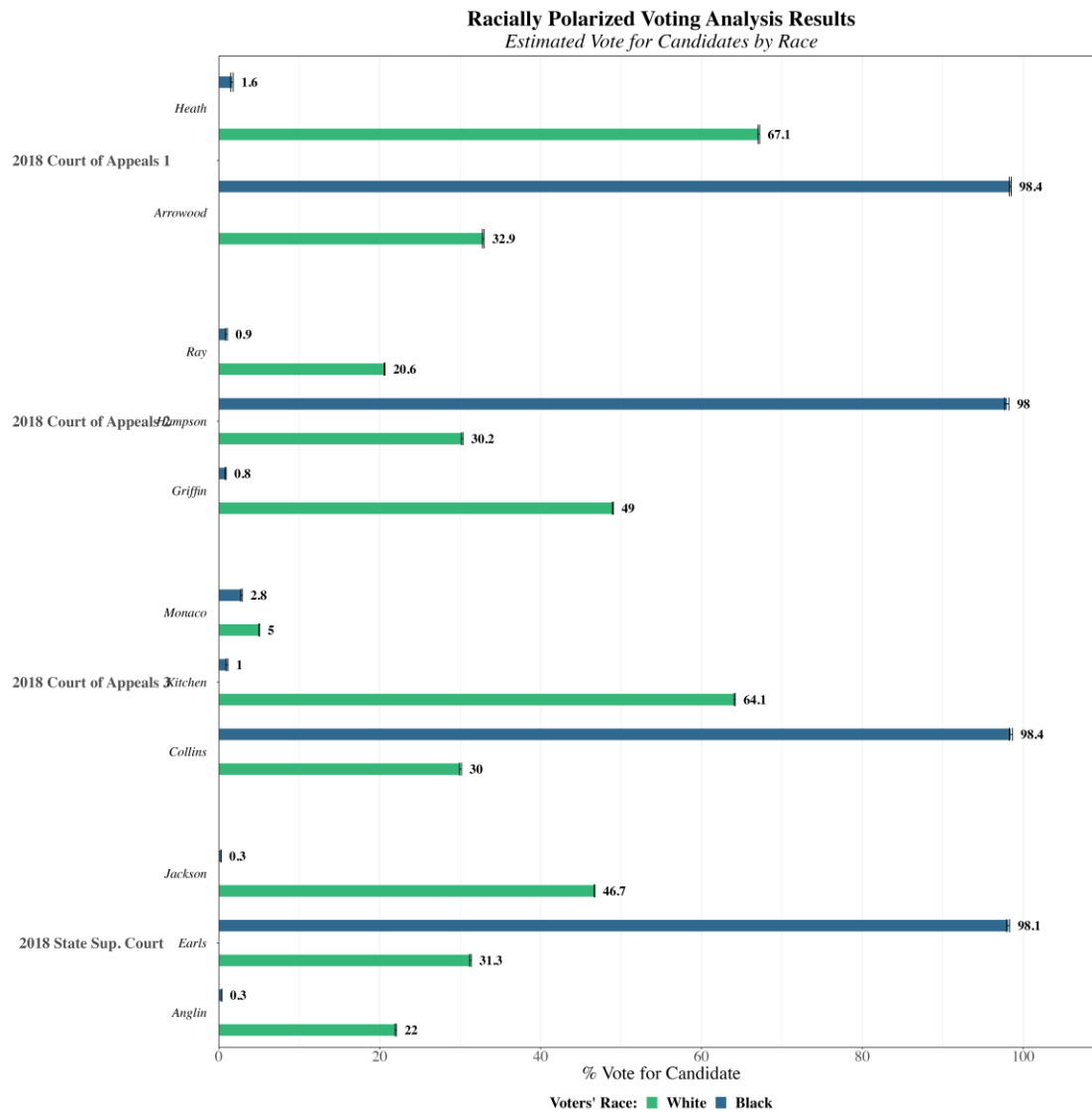
Figure 22. Racially polarized voting 2018 contests. Enacted State Senate Districts 1 and 2. Collapsed Republican candidates.
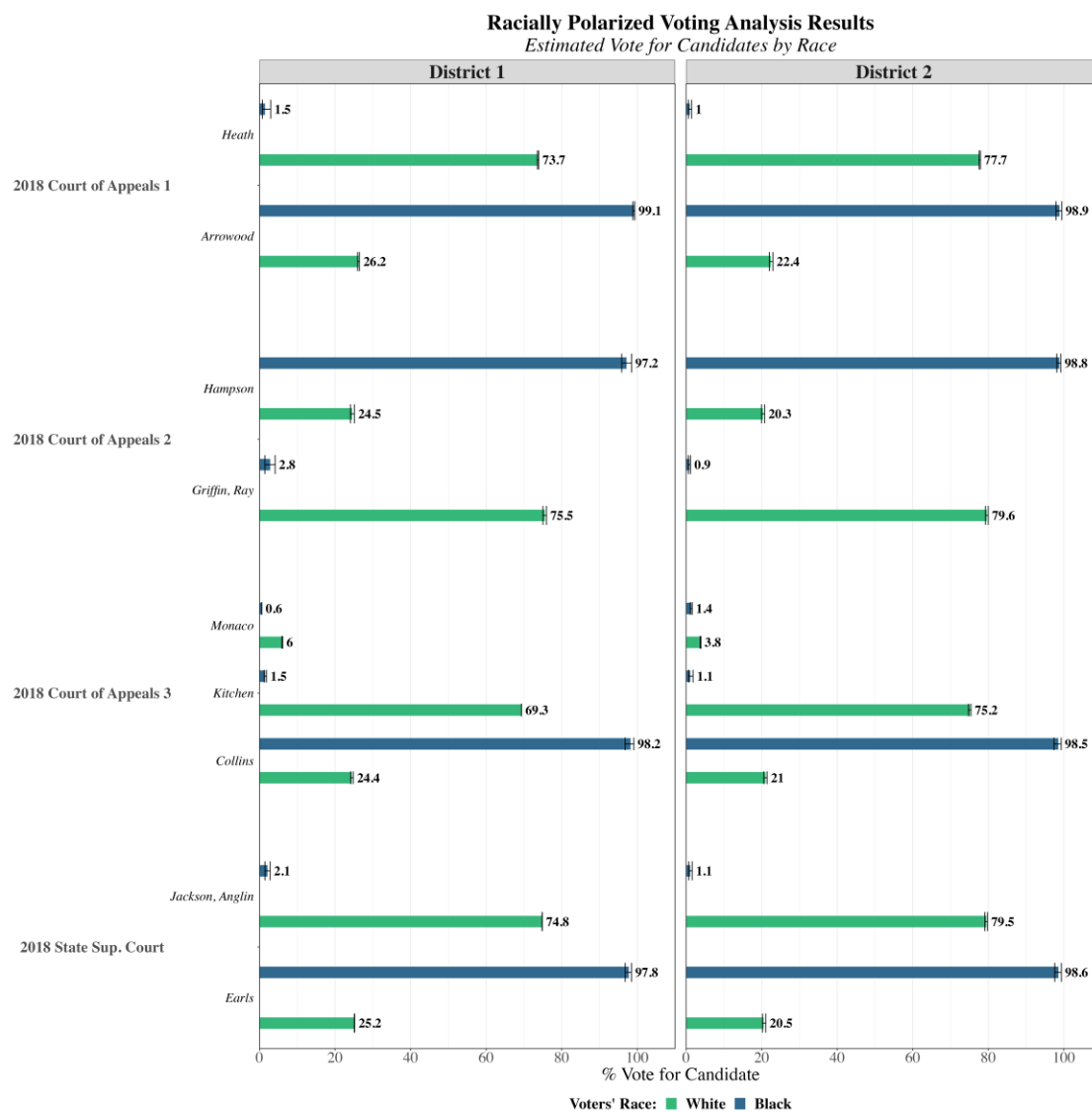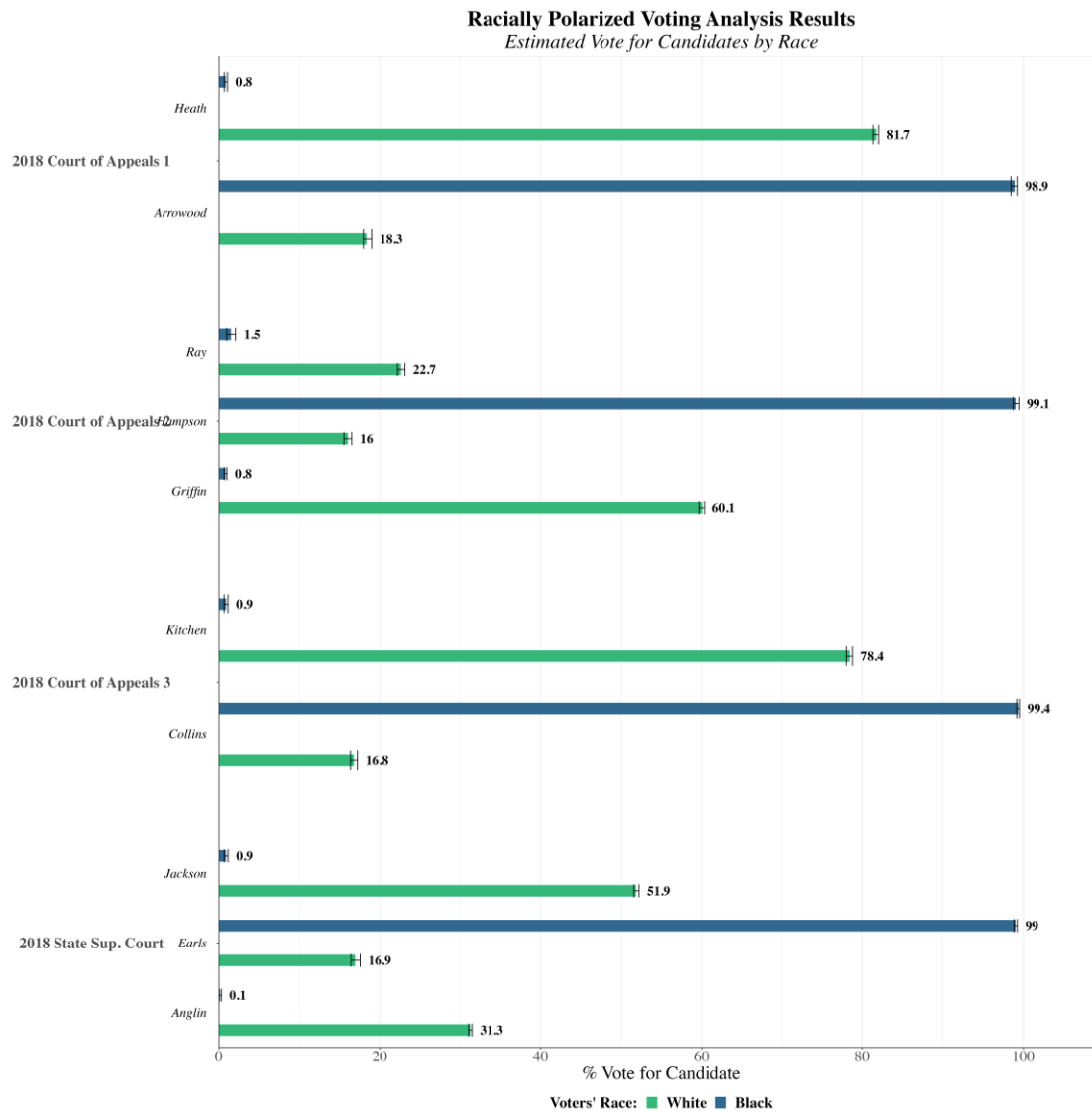
Figure 23. Racially polarized voting 2018 contests. Enacted State Senate Districts 1 and 2. Keep Republican candidates separate.
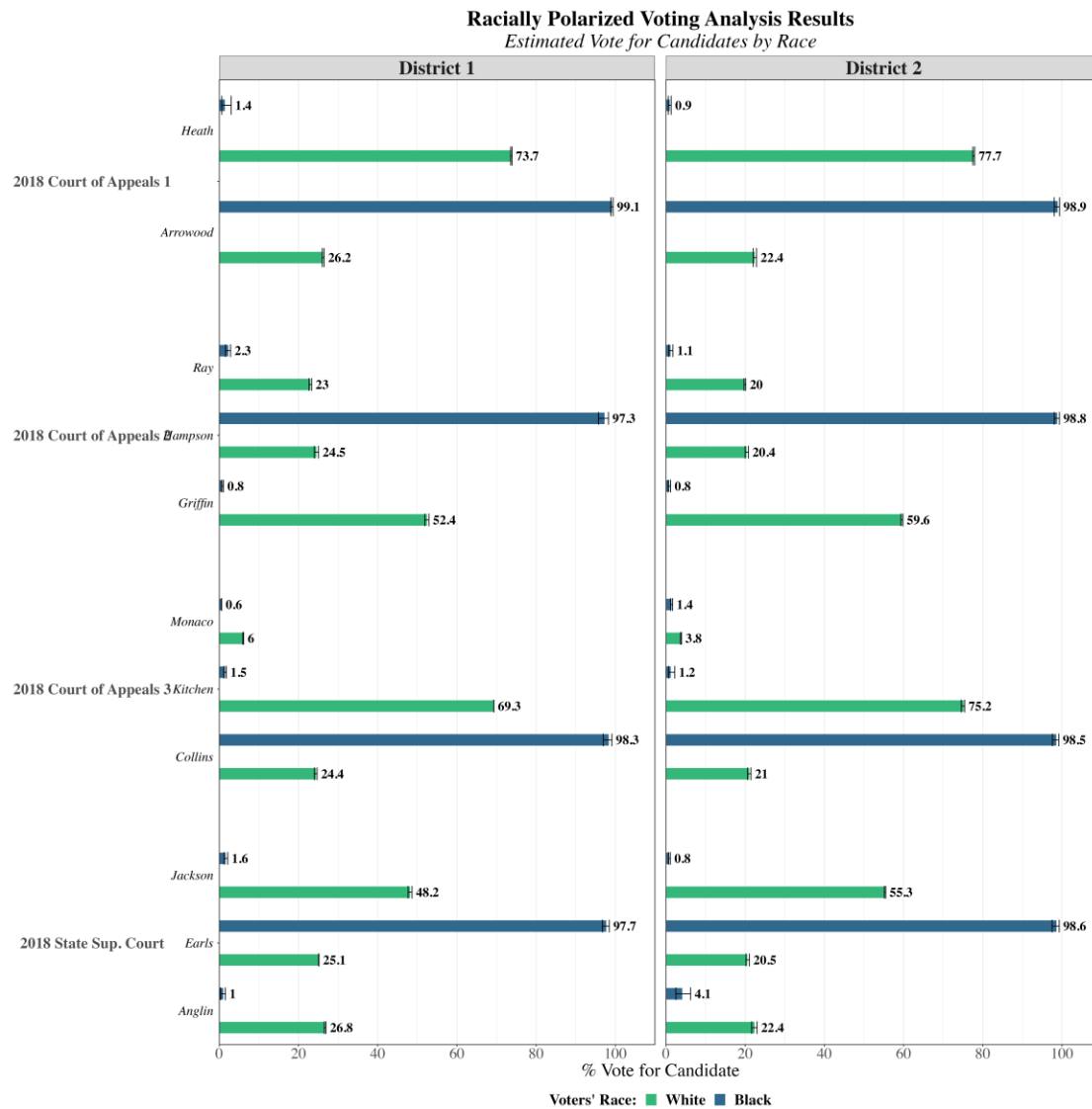
Figure 24. Racially polarized voting 2018 contests. Demonstration district county area. Collapsed Republican candidates.
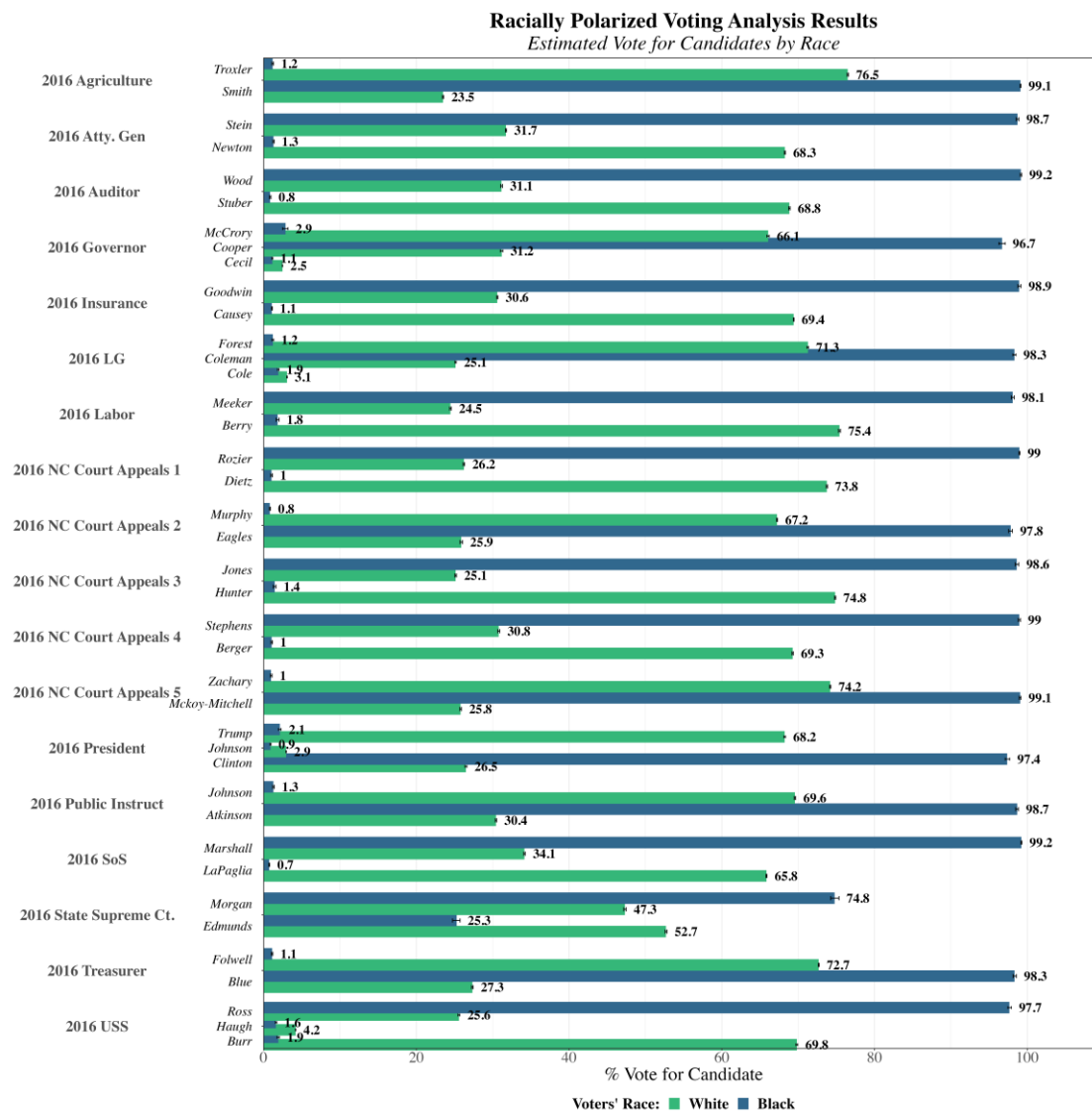
Figure 25. Racially polarized voting 2018 contests. Demonstration district county area. Keep Republican candidates separate.
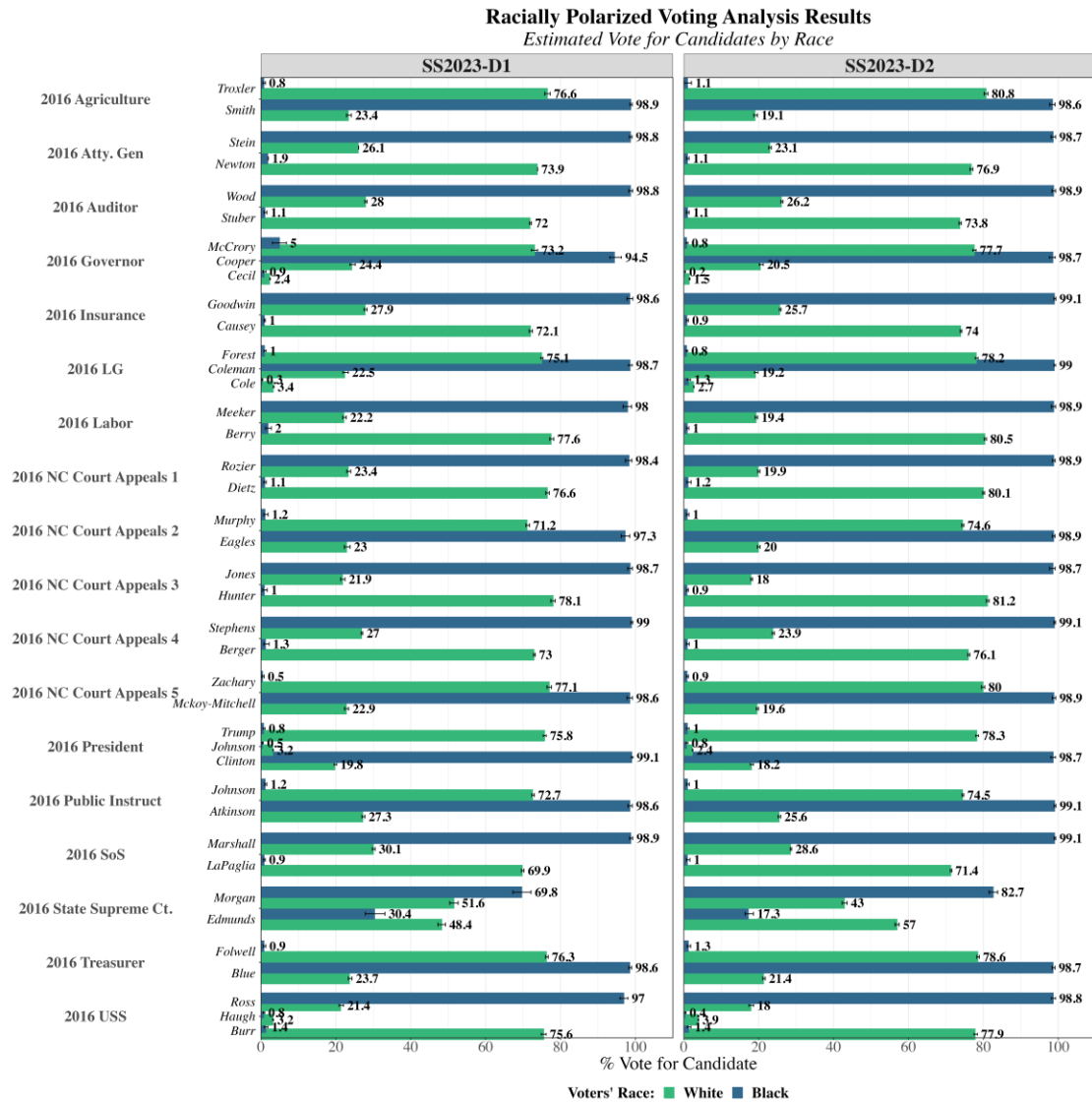

2016 RPV

**Figure 26.** Racially polarized voting 2016 contests. Statewide.

Racially Polarized Voting Analysis Results
Estimated Vote for Candidates by Race

Figure 27. Racially polarized voting 2016 contests. Enacted State Senate Districts 1 and 2.

Racially Polarized Voting Analysis Results
Estimated Vote for Candidates by Race

Figure 28. Racially polarized voting 2016 contests. Demonstration district county area.
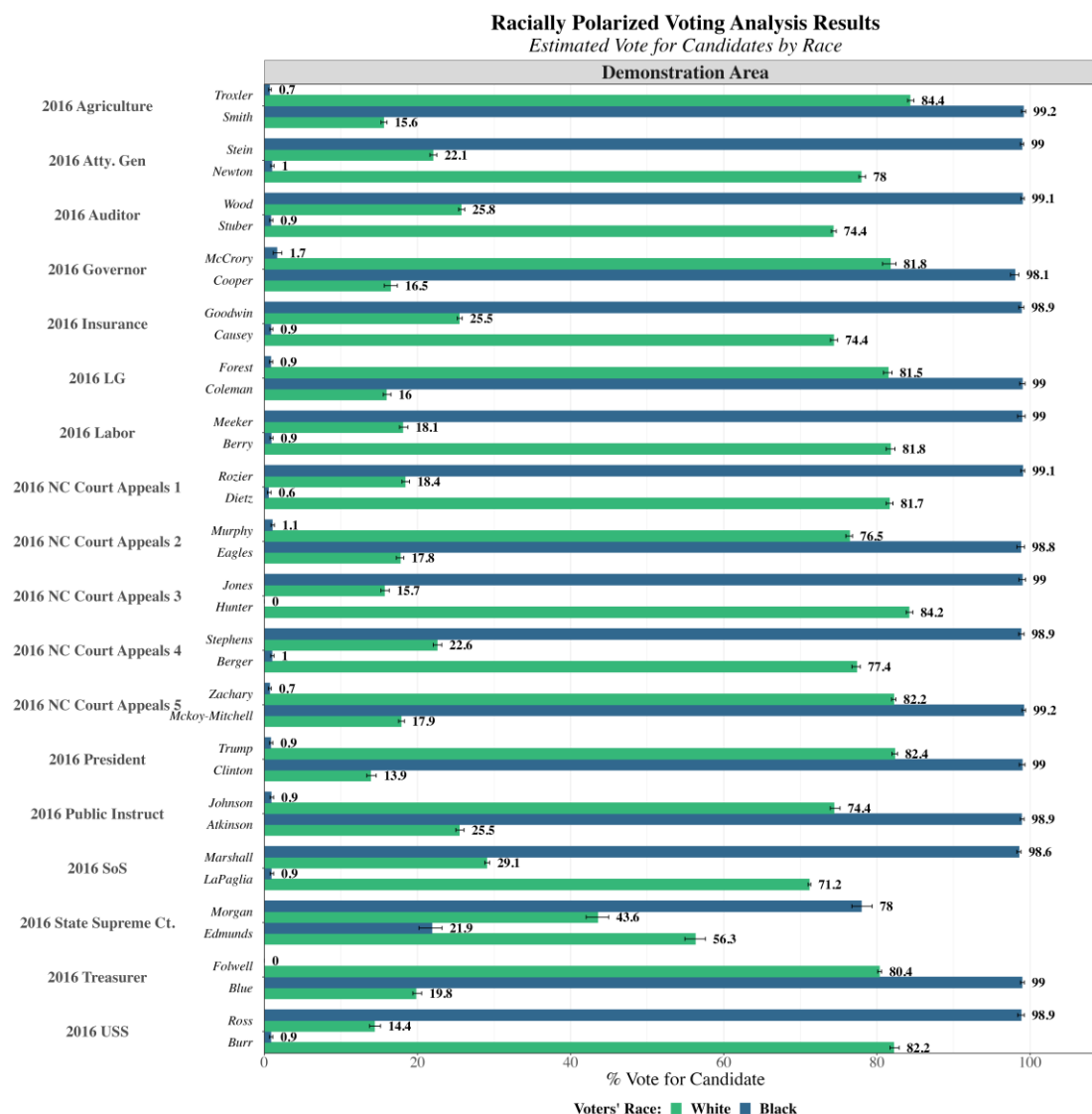
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41